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SYMPOSIUM ON PEDIATRIC SURGERY
INTRODUCTION

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By way of introduction I will discuss a few of the surgical conditions, preoperative and postoperative care and I will describe in detail fluid administration and parenteral feeding.

SURGICAL CONDITIONS

1. *Tracheoesophageal fistula* and *esophageal atresia* in the newborn may be suspected because of excessive amounts of mucus in the mouth and regurgitation of feedings followed by attacks of cyanosis. If one suspects this condition, a No. 8 French soft rubber catheter may be passed through the nasal passages into the esophagus. If the catheter enters the stomach, atresia is not present. However, the presence of the catheter in the stomach should be confirmed by flouroscopy as the end of the catheter may curl up in the blind esophageal pouch. With the patient in a prone position and with the end of the catheter in the upper esophageal section, under fluoroscopy one may instill ½ to 1½ cc. of lipiodol slowly through the catheter so as to prevent the overflow of the lipiodol into the trachea. The infant should be maintained in a prone position during examination and the oil should be removed by suction immediately upon completion of the x-ray studies. Barium should not be used as a contrast medium because of the danger of a chemical pneumonitis resulting from aspiration of this substance. An accurate differential diagnosis of the various forms of esophageal atresia and tracheoesophageal fistula may be made by x-ray examination. Preoperative factors of importance include the administration of oxygen, antibacterial therapy, and constant suction of the contents of the upper esophageal pouch through a No. 10 French catheter. Electrolyte and water balance must be carefully maintained. Once the diagnosis has been established nothing should be given by mouth.

II *Intestinal atresia* usually causes death within the first week of life due to severe dehydration and intestinal perforation. Although there is a high mortality rate in these infants, early diagnosis and treatment can do much to lower mortality. The symptoms are almost always shown on the first day of life and consist of vomiting which becomes progressively more frequent and severe. Abdominal distention is usually an important feature. The absence of cornified epithelial cells in the stools in the first forty-eight hours of life may be helpful in the diagnosis. This is called the Farber test and consists of an examination of a stained smear of the meconium to show the epithelial cells. X-ray examination is helpful in the localization of the site of obstruction. Preoperatively, decompression by means of suction is of the utmost importance. Increasing the oxygen concentration of inspired air by placing the infant in an oxygen tent also aids in decompression. Intestinal stenosis with obstruction during the first week of life cannot be differentiated clinically from atresia.

Presented at the Seventieth Annual Meeting of the Louisiana State Medical Society, April 25, 1950.

III. The presence of an *imperforate anus* is brought to the attention of the physician the first few days of life because of the absence of an anal opening, failure to pass stools, or passage of meconium through an abnormal outlet. There are three types of rectal anomalies in general: (1) The most common consists of an imperforate anus with the rectal pouch ending blindly some distance above. (2) The second type is that with the rectal pouch ending blindly in the hollow of the sacrum with a normal anus and distal rectal pouch. (3) The least common form is an imperforate anus with an obstruction due to a persistent membrane. These anomalies are commoly accompanied by fistulae. In addition to the absence of meconium stools one observes abdominal distention, vomiting, and other symptoms of obstruction within twenty-four to thirty-six hours. X-ray examination by the Wangensteen method will help to determine the position of the blind rectal pouch. The infant is held with his head down and with a lead marker in place over the skin at the anal site. Anterior posterior and lateral film should be taken. The gas which is present in the colon rises and outlines the blind rectal pouch. This procedure when employed by the end of the first day may be very helpful. Examination prior to this may be misleading because insufficient time may have elapsed to permit air to reach the distal portion of the large bowel.

IV. *Malrotation of the intestines* usually becomes manifest in the first three weeks of life and shows signs and symptoms of high obstruction because the mesentery compresses the second or third portion of the duodenum. Bowel movements may occur because the obstruction often is incomplete. Fever may indicate infarction or volvulus.

V. The diagnosis of *congenital diaphragmatic hernia* must be considered in newborn infants who present symptoms of cyanosis, dypsnea, or vomiting. The cyanosis may occur only on feeding or crying. X-rays and fluoroscopic examination will confirm the diagnosis and permit the identification of the herniating structures. The use of barium as a contrast medium is contraindicated except in the presence of an esophageal hiatus hernia.

VI. Diagnosis of an *omphalocele* is obvious and the treatment is immediate surgery. It represents herniation of the abdominal contents into an abnormal saclike umbilical cord, so that these abdominal contents are covered by a peritoneal and amniotic membrane only.

VII. *Duplications of the alimentary tract* also cause signs of obstruction, including vomiting, distention, and dehydration. Occasionally a tumor mass may be palpated.

VIII. *Meconium ileus* manifests itself as a severe intestinal obstruction with early onset of vomiting and the passage of thick, tenacious meconium. These cases have been found to be due to fibrocystic disease of the pancreas.

IX. Most cases of *intussusception* occur during the first year and cause colicky pain with signs of shock. Early and repeated vomiting may occur. Bloody stools may be passed. The latter is a late sign. An abdominal mass is often felt and occasionally the tip of the intussusception may be palpated through the rectum. Treatment is early surgery.

X. The symptoms of *pyloric stenosis* are those due to high obstruction, including projectile vomiting which usually begins during the second week of life. At times the vomiting may begin as early as the first day of life. We find the x-ray examination with barium valuable as it enables us to make an early diagnosis and operate before the patient has lost much weight.

XI. The treatment of *inguinal hernia* in infants otherwise normal is surgical regardless of age. A truss may be used when it is necessary because of the physical condition of the patient to postpone surgical correction.

XII. *Obstructive conditions of the urinary tract* amenable to surgery should always be borne in mind. Included in this group would be congenital obstructive valves in the posterior urethra, ureterocele, bladder tumors, foreign bodies (bladder).

PREOPERATIVE AND POSTOPERATIVE CARE

One of the most important aspects of preoperative and postoperative care is the careful regulation of the electrolyte, fluid, and nutritional balance in these infants and children. Special caution should be observed in determining the amount of saline to be administered to newborn infants since kidney function in this age group is relatively immature. Blood transfusion or plasma should be given as indicated by the red blood count, hematocrit and the plasma protein level. The rate of administration of the blood should be slow to prevent circulatory embarrassment. Because of possible blood loss at the time of surgery or the development of shock, blood should be available to be given during or following, if needed. In those conditions in which decompression of the gastrointestinal tract is desired the simple procedure of passing a Levin tube into the stomach and connecting the tube to a source of general suction is expedient in reducing distention. The use of high oxygen concentration in the tent is also helpful in diminishing the intestinal distention.

Nutrition is improved by parenteral feedings when necessary but most cases seen early need only some fluid with proper postoperative care.

Opiates are not used preoperatively in young children. Barbiturates may be used if desired. Atropine or scopolamine is used to reduce formation of mucus.

Fluids are administered intravenously or by clysis. By using hyaluronidase, fluid subcutaneously is rapidly absorbed so that one must be just as careful about the quantity administered as though it were given intravenously.

It is impossible to give a mathematical answer to the question of fluid requirements Approximate rules may be given, but the patient must be judged clinically and changes made accordingly.

I wish to emphasize the danger of too rapid administration of fluid, or overdosage with fluids, because of the danger of water intoxication; to warn against overdosage with sodium chloride. The approximate requirement may be easily and quickly calculated.

FLUID ADMINISTRATION

Dehydration: Consists of loss of intracellular and extracellular fluid. The amount of fluid to be administered should consist of the amount lost, plus the daily basic requirement. In an infant, the amount lost may be calculated by the loss of weight. Various studies indicate that water loss amounts to about 5 per cent of the patient's weight in moderate dehydration, and to 10 per cent in marked dehydration.

Therefore, an infant whose ideal weight is 6 kg., and who has lost 500 gm., should receive 500 cc. to cover the water deficit and 110 cc. per kg. for daily maintenance. A child weighing 20 kg., with moderate dehydration, would need 5 per cent x 20 kg., or 1000 cc., to cover the water deficit. The coverage of the deficit should be spread over more than one day, if possible.

Water requirements are shown in table 1.

TABLE 1

APPROXIMATE NORMAL WATER LOSSES AND ALLOWANCES* PER DAY FOR PERSONS OF VARYING SIZE NOT SUBJECT TO EXERTION OR SWEATING

	Water Loss				Usual Water Allowances		
Size	Urine cc.	Stool cc.	Insensible cc.	Total cc.	cc/person	cc/kg	oz/lb.
Infant (2-10 kg.)	200-500	25-40	75-300**	300-840	330-1000	165-100	2.5-1.5
Child (10-40 kg.)	500-800	40-100	300-600	840-1500	1000-18000	100-45	1.5-0.7
Adolescent or adult (60 kg.)	800-1000	100	600-1000***	1500-2100	1800-2500	45-30	0.7-0.5

*Including the water content and water of oxidation of food, which under normal circumstances, except for infants, approximate the insensible water loss.

**1.3 cc. per kilogram per hour.

***0.5 cc. per kilogram per hour.

(Butler, A. M., and Talbot, N. B.: New England J. Med. 231:585.)

Sodium and chloride replacement: As in the case with water, the amount of sodium and chloride ions should consist of the daily basic requirements plus the deficit. (See Table 2) These ions are extracellular ions

and the deficit may be calculated from the deficit of extracellular water. This deficit represents one half of the total water loss. Therefore, one half of the fluid given to cover the deficit will be normal saline.

Postoperatively, sodium chloride should be withheld for forty-eight hours, except to cover extracellular fluid losses, as in sweating, vomiting, or gastric aspiration, because the excretion of chloride is decreased. Laboratory examinations will reveal a low chloride level in the extracellular fluid but infusions of sodium chloride often fail to raise the level and may cause weakness, nausea, and vomiting (postoperative salt intolerance).

Losses of gastric juice by vomiting or aspiration must be met by a two thirds volume of normal saline.

The water requirement, other than that furnished by saline, is furnished by 5 per cent glucose.

TABLE 2
SODIUM CHLORIDE REQUIREMENTS DAILY

Infants	1 gm.	125 cc. normal saline
Children	3 gm.	350 cc. normal saline
Adolescents	6 gm.	700 cc. normal saline

When large amounts of fluids have to be replaced, and especially when fluid has been lost by diarrhea or vomiting, some modification of Ringer's solution is preferred to saline to replace part of the saline. Note that Ringer's solution contains only 0.6 per cent sodium chloride and, therefore, a larger amount will be necessary to cover sodium chloride requirements than if normal saline is used.

Parenteral Feeding: 5 per cent amino acid in 5 per cent glucose solution supplies calories and nitrogen. It should be given slowly when administered intravenously. The remainder of the calories are supplied by glucose solution. Additionally, suitable amounts of B vitamins, ascorbic acid, and vitamin K are given parenterally.

At least 1 gm of amino acid per kg. per day or, preferably, twice this amount, should be used to maintain nitrogen balance and protein synthesis. One half of the ampule of vitamin B complex and ascorbic acid, as used for adults, should be given infants and children (such as, Lyo B-C of Sharp & Dohme, or Solu B with ascorbic acid by Upjohn.)

If a significant deficit of serum protein exists, blood plasma should be administered in addition to the amino acids.

To feed a child entirely by parenteral methods:

1. Calculate total fluid requirement.
2. Calculate amount of amino acids.
3. Calculate amount of saline.
4. Make up the fluid needed in addition to that supplied by the amino acid solution and saline with 5 per cent glucose.
5. Add vitamins.
6. Modify amount of fluid, depending on the clinical condition of the patient.

This will provide insufficient calories to maintain a patient many days. If necessary, we use 10 per cent glucose and use amino acid in 10 per cent glucose. When giving the stronger solutions, they must be given very slowly to avoid diuresis and, when diuresis occurs, a larger amount of fluid must be given. Approximately a little over half the usual calories required will sufficiently maintain a patient.

Example: To maintain on parenteral feeding a patient weighing 20 kg.; no water, sodium or chloride deficit to be made up, the requirements are shown in table 3.

TABLE 3

Total fluids required		*Calories*
20 (kg.) × 80 cc.	1600 cc.	
Amino Acid required at		
1 Gm. per kg. = 20 Gm.	400 cc.	140 calories
5% amino acid solution contains 5 gm. per 100 cc.		
Therefore, amino acid required will be 400 cc.		
Sodium Chloride required	350 cc.	
Balance of fluid, 5% glucose	850 cc.	170 calories
		310 calories
5% amino acid in 5% glucose contains		3.5 calories per cc.
5% glucose contains		0.2 calories per cc.

TABLE 4

APPROXIMATE DAILY REQUIREMENTS OF CHILDREN FOR CALORIES, PROTEIN, AND WATER

Age in Years	Calories* per Kg.	Protein Gm. per Kg.	Water CC per Kg.
Infancy	110 (120-100)	4.0	150
1-3	100 (100-90)	3.5	125
4-6	90 (90-80)	3.0	100
7-9	80 (80-70)	2.5	75
10-12	70 (70-60)	2.0	75
13-15	60 (60-50)	1.5	50
15+	50 (50-40)	1.0+	50
Adult	40 (40-30)	1.0	50

*To convert to calories per pound of body weight, take one half of the value for calories per kg. and subtract 10 per cent of it, e.g., 60 cal. per kg.÷2=30—3 or 27 ca. per pound of body weight.

TABLE 5

APPROXIMATE DAILY CALORIC REQUIREMENTS OF NORMAL RESTING PERSONS OF VARYING SIZE, TOGETHER WITH THE DAILY DEXTROSE AND AMINO ACID ALLOWANCES* THAT THEORETICALLY MIGHT SATISFY THEM

Size	Daily Caloric Requirement	Daily Dextrose Allowance		Daily Amino Acid Allowance	
	cal./kg	gm./kg	cal/kg	gm./kg	cal./kg
Young Infants	60	14	54	1.5	6
Old Infants	55	13	51	1.0	4
Children	30	7	28	0.6	2
Adolescents and adults	25	6	24	0.6	2

*Available evidence suggests 6 gms. of nitrogen or 40 gm. of amino acid as a reasonable daily allowance for the adult; that for estimating the daily allowance for young resting patients on a high carbohydrate diet is meager. (Butler, A. M. and Talbot, N. B.: New England J. Med 231 :585.)

These tables (tables 3, 4 and 5) are given to show the requirements for active infants and children and nonactive infants and children. If the latter calorie requirement is met, it is usually sufficient. Note that the amount of amino acid given is greater than the amount listed in the last table.

SOME COMMON ORTHOPEDIC PROBLEMS OF CHILDHOOD

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In the broad scope of the healing arts, the field of orthopedic surgery is a branch that is comparatively young in years. Rather strangely, it was a division that was limited, originally, to the problems of the child. The term "Orthopedics" was first given it by Nicholas Andry, the French surgeon, who in 1757, wrote his thesis on the prevention and correction of children's deformities. Andry was not the first to be aware of these deformities, for two centuries before his era, Paré wrote in his own ten volum treatise on surgery about the relation of posture and spinal deformities in young girls. However, the impetus to orthopedics was stimulated by Andry, and in the succeeding years, this field, as a branch of preventive medicine had its growth. With successive wars and mechanization of industry, more and more attention was given the traumatic aspects of orthopedic surgery, and it was not until the present century that great strides were made in not only the prophylactic but also the therapeutic application of proper methods of orthopedic treatment in the structural problems of the child.

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The purpose of this topic is to list the common orthopedic problems in the infant, preadolescent and preadult individual, with a statement of the accepted forms of corrective therapy, both surgical and nonsurgical. For this purpose, it is necessary to divide the pathology into logical headings for clarity.

1. CONGENITAL DEFORMITIES

These may be divided into two categories, primary or idiopathic, and secondary. In

the former, it is conjectured that there is pathology in the germ cells which causes a defect in the fertilized egg. In the secondary type, it is believed that to a normal fetus, some other cause produces the change, such as injury to the mother, or nutritional defects to the growing child in utero. Others classify them according to appearance into three classes. First, those with atrophy or hypertrophy of a part; secondly, those with numerical variations of parts or members; and lastly, those with developmental abnormalities. The types are many, but the more usual kinds, and a word about care, are presented here.

(a) A most common finding is polydactylism, where digits are increased in number. The problem requires surgery for removal of the extra digits for various reasons. In the hand, the defect is unsightly, and a child with this visible abnormality is subjected to gibes and teasing from other children, and suffers psychological hazards. Also, the extra part can inhibit function. In the foot, the problem is one of shoe fitting, and static problems of weight bearing may develop if the deformity is allowed to remain. Preoperative radiological studies are essential, as there may be more skeletal abnormalities than appear on mere inspection of the part. These minor amputations may be done as early as desired, preferably before the child is of walking age.

(b) Club foot is not an unusual abnormality. Discovered at an early age, in most instances it is quite amenable to conservative or nonoperative care. The elements of this deformity, varus of the forefoot, inversion of the entire foot, and equinus position, are all three separate problems, and although the intrinsic structures of the foot are not abnormally formed, the imbalance created by this persistent position will eventuate into deformities of growth. Later in life bone surgery will be essential to obtain good weight bearing. When this entity is identified in a new baby, treatment may be begun in the first month by application of proper plaster casts, after the method given and described by Kite, in 1935, wherein carefully fitted boot casts are applied with alternate wedgings of the deformity, until establishment of the normal foot alignment is attanied and maintained.

In later life, if the deformity has persisted and bony changes have occurred, then more severe surgical corrections to the midtarsal region will be necessary, as well as lengthening of the heel cord to allow the heel to rest on the floor. The condition is never as satisfactorily treated in older children as in younger ones.

(c) A not infrequent abnormality is congenital dislocation of the hip, a condition in which the femoral head is located outside of the acetabular socket. The etiology of this condition is not known, but it has been recognized since ancient times. However, only in the past fifty years has successful treatment been attained. It is more frequently seen in the temperate zones, and was thought for some time to be predominant in people of Latin descent. However, it has been experienced in recent years that the problem may occur in persons of all races, and has been seen several times in the colored. In the very young infant, it is frequently overlooked, and later makes its first visible presentation after walking has been established. With the appearance, after the first year of life, of a shortened leg, prominence of the trochanter, the presence of abnormal skin folds on the inner aspect of the thigh, the eversion of the extremity, one can suspect the dislocation of the hip. X-ray studies will reveal the delay of development of the superior femoral epiphysis, the lateral and upward displacement of the involved hip, and a loss of the obdurator coxofemoral angle. Treatment may vary from wide abduction splints in mild subluxations, to closed manipulations and casts in the so-called frog position in more severe types, to skeletal traction, followed by osteotomies of the upper portion of the femur, and shelf operations on the acetabular socket. In early cases, with proper care, excellent results may be obtained. In later childhood, however, surgery is more extensive, and the results, while satisfactory, are not as complete or desirable. It is, there-

fore, necessary for early diagnosis to be made.

(d) Torticollis, or congenital wryneck, is frequently seen in the various crippled childrens' clinics. Many theories are held as to the cause of development of this condition, and it is believed that trauma of delivery is the usual method of production. Recently, others have believed that intrauterine changes, consisting of malposition of the head, with some degree of ischemia to the sternomastoid muscle is a possible etiological factor. It is noted in these children, that shortly after birth, there is a hard, fusiform swelling in the sternocleido mastoid muscle of the side of the neck. As the muscle becomes shortened, a visible poor relation between head and trunk is established, in which the head is tilted to the side of the pulling muscle, while the chin rotates toward the opposite shoulder. If left untreated, this condition tends to be permanent, and causes developmental atrophy of the side of the face closest to the deformity, with a shifting in the level of the eyes for normal usage. In early childhood, this may be easily overcome by the division of the sternomastoid muscle at its attachment at the clavicle or mastoid process, with removal of the tumor mass, when found, and corrective splint applications to the head to maintain it in an over-corrected position, until all contractures have been overcome. This will again allow development of the head in a symmetrical fashion, and prevent any eyestrain in later life.

2. INFECTION

A second great category or childrens' orthopedic problems consists of those related to infection. This covers a multitude of various types of local and systemic infections, but for brevity, the most common are listed with their present-day concepts of treatment.

(a) The dread problem of osteomyelitis has been a spectre of a number of childhood infections for many years. Great strides have been made in the diagnosis and treatment of this problem in the past fifteen years. When the author was first launched into practical medicine, osteomyelitis was an acute surgical emergency, and was treated as such with a fair degree of mortality. Osteomyelitis in childhood is a blood borne infection, the source being derived from local infections in lymphatic organs or in staphylococcic infection of surface wounds. The organisms traverse through the Haversian system of the osseous structures, and lodge near the epiphyses of the long bones. The onset is one of severe general illness, with flushing of the skin, restlessness, increased pulse rate, fever, and a leukocytosis that may reach as high as 25,000. The affected limb is held in a semiflexed position, with excruciating tenderness at the level of the metaphysis of the bone affected. The adjacent joint may be swollen. The area is hot, reddened, and palpation of the limb reveals thickening, heat, swelling and muscle spasm. Blood culture studies may reveal the presence of the offending organism. Radiological studies in early cases are unrevealing, and show no problem other than thickening of the soft tissues. In later stages, however, destruction of the bone beneath the periosteum at the site of the metaphysis becomes obvious, and increases with the spread of the infectious process. The present concepts of the treatment of the disease consist of primary treatment of the individual case. First and foremost, the limb should be immobilized, either by simple traction, or in plaster, to allow for relaxation of the structures and to prevent painful motion. Secondly, attention should be paid to the care of the individual, insofar as nutritional and fluid requirements are concerned. Body fluids must be kept up, and an accurate record of intake and output recorded. In addition, multiple small transfusions should be given at frequent intervals, due to the fact that the infectious process is destroying the blood cells. Aspiration of the affected part at the site of maximum tenderness should be performed as soon as the localized area of swelling is located. This serves two purposes. First, the identity of the organism may be known, and its sensitivity to antibiotics determined. Secondly, the abscess cavity, after aspiration, may be

filled with penicillin solution and can attack the organisms directly. Lastly, penicillin should be given parenterally at frequent intervals to raise the blood level of the body sufficiently to combat infection. Within recent years, at Charity Hospital in New Orleans, this method of treatment has prevented the surgical intervention of subperiosteal drainage of the abscess or entrance into the marrow cavity by means of a drill to permit evacuation of the abscess. If surgery is determined to be a necessary sequence of events, the patient should be at maximum fluid balance, and the extent of surgery is to be determined for drainage by the appearance of the abscess cavity beneath the periosteum under direct vision. Immobilization, fluids, and antibiotic therapy should be continued until all toxic symptoms have subsided. The radiological picture is not of too great importance with the administration of antibiotics, since it is definitely known that the administration of these drugs gives a delayed x-ray picture.

(b) Suppurative or septic arthritis of the joints is seen with increasing frequency in young children in recent years. A mode of infection is believed to be similar to that of osteomyelitis, namely, the invasion of the blood stream by offending organisms which lodge in the crevices of the joints, rather than in the end vessels of the metaphyses of the bones. The onset of symptoms is almost identical with that of osteomyelitis, with the same type of hyperpyrexia, malaise, dehydration, swelling of the joint with the presence of an abnormal amount of synovial fluid, and painful immobility of the extremity involved. Aspiration of the joint reveals the presence of purulent material and treatment is instigated in a similar manner to that given in osteomyelitis. However, a problem exists here in that it is known that some enzyme is present in the leukocytes, which has the effect of lysing cartilage and causing permanent destruction of the articular surface and residual stiffening of the joint, if proper drainage is not established. If the process does not subside within a brief period of time under aspiration and injection therapy, along with other supportive measures, then it is recommended that surgical drainage of the joint be effected. After the joint has been opened and drained, the surgeon is faced with a two-fold problem of continuance of therapy. If the synovial membrane is not too engorged, and the articular surfaces of the joints are not involved, then the joint is thoroughly lavaged with normal saline, and carefully closed. If, however, there is segmentation of the joint cavity into compartments and there is tremendous thickening of the synovial membrane, then the drainage should be made semipermanent by marsupialization of the operative site by suturing the synovial membrane to the skin, to allow continuance of drainage without blockage from the edematous synovial lining. The patient is continued in traction with encouragement to active motion to assist the drainage, and it is found that the wounds are healed within two or three weeks, with only mild limitation of joint function.

(c) Tuberculosis in childhood, as far as bone or joint structures are concerned, usually involves the joints of the hip or lower spine. Invasion of the organisms into the joint causes destruction of the articular surfaces, with gradual loss of motion, and eventually complete ankylosis of the involved articulation. In the spine, there may be destruction of the vertebral bodies with deformities of the trunk resulting, and in the hip, it may be followed by flexion contractures with crippling deformities noted on walking. A prodromal history of this process is one of a child who shows progressive loss of weight, late afternoon fever, night pain in the affected joints, and gradual swelling and tenderness about the involved area. X-rays show progressive destruction of the articular surfaces and malformation of position of the joint in relation to the rest of the body. The problem is one of arresting the process, as in pulmonary tuberculosis. Inasmuch as it is felt that invasion of the joint causes eventual stiffening, the problem of the surgeon is to place the limb in an optimum position, so that when fusion does take place, the

function of the part may be preserved as much as possible, and weight bearing and locomotion may be continued in a limited but painless fashion. This may take a long time, and it is now generally considered that along with general body building measures, surgical fusions of the joint may result in arrest of the process at a much earlier interval than by simple immobilization in optimum position. With general supportive measures, and the use of streptomycin and the newer drugs, open surgery can be safely done on the involved areas, an arthrodesis can be performed by bone graft methods with immobilization in plaster until radiological evidence of solid fusion is obtained. Careful follow-up studies must be continued for a number of years to see that no relighting develops.

3. PARALYTIC INVOLVEMENTS

Paralytic involvements of children fall under three large categories, two of which may be definitely aided by proper orthopedic therapy.

(a) Anterior poliomyelitis is a problem that has been held in the attention of the lay public and the medical profession to a large degree in recent years. The problem to the medical profession is primarily one of early diagnosis and the proper general care of the patient. From an orthopedic standpoint, the problem is one of prevention of deformity, the institution of proper rehabilitation measures, and in the later stages, the use of such appliances and such surgery as will allow the patient to become independent of external support. The concepts of the mode of infection at the present time are known to an equal degree by all members of the interested medical profession, and need not be elaborated upon here. After the diagnosis is established, the problem in the early convalescent cases is one of control of discomfort and the prevention of joint stiffening and control of deformity by protection of the paralyzed muscles. Under proper physical therapy measures, reeducation of the involved structures may take place over a period of approximately two years, with protection of the part to allow restoration of function in the best position. At the end of this period, in early childhood before the eighth or ninth year, it is generally accepted in good practice that protection of the part in proper braces is of primary importance. Occasionally, muscle transplants are done before the ninth year, but as a general rule, bony stabilization measures and tendon transplants are done after this time. This is due to the fact that bony structures are better developed and greater cooperation of the patient may be established. The more common procedures of orthopedic surgery in relation to involvements from poliomyelitis are stabilizations of the feet, in which the subastragalar, calcaneocuboid, and astragaloscaphoid joints are fused solidly by removal of the articular cartilage between them to prevent untoward inversion and eversion of the foot. Stabilizations of the spine to perform fusion are done where there is imbalance of the trunk muscles. In both foot and hand, tendon transplants are performed to re-establish balance of flexion and extension, and allow more normal use of the parts. The whole problem is one of progressing the patient from chair to weight bearing, from weight bearing with crutches to weight bearing without crutches, and from the use of braces to the elimination of them, if possible.

(b) Spastic paralysis is a different problem from that of poliomyelitis. It is a distinct problem in childhood, as these children are completely under the care of the interested parents. The cause was formerly believed to be due to trauma of childbirth, but it is felt at the present time that this plays only a small part. Present statistics indicate that there are about 7 spastics per 100,000 population, and although the exact causes are not known, concepts at this time include rapid delivery and premature children, the Rh factor, the birth injury group from trauma of forceps or excessive traction, cerebral anoxia, convulsions from brain damage, or brain damage caused by convulsion, encephalitis, and neoplasms. Spastic paralysis is a loss of control of the neuromotor system of the body, and may be present from a mild amount of loss of control of the extremities to a complete

tetraplegia with speech and eye defects, and, of course, such lack of development or such damage to the brain that mental deficiency exists along with the problem. Those cases with mental deficiency are, of course, ruled out from any type of treatment, and are institutional problems throughout their lives. Those cases with athetosis, or the persistence of involuntary movements, are, as a general rule, unsuitable for surgery, since no known method of immobilization exists that would control these untoward motions during reparative surgery. The chief problem in spastic paralysis is one of constant, persistent education. These patients may be taught carefully, under guided instruction, to feed and dress themselves and to perform useful functions. Proper bracing and support in many instances allow the use of the involved extremities to some degree, and in these cases, where it is found that a useful function can be employed by a hand or foot, with repair certain types of operations may be performed. These may consist of fusion of joints which are held in permanent flexion, tendon transplants where an imbalance of muscles exists, and division of nerve supply to involved muscles to reduce the number of impulses to that muscle, and thereby lower the spasticity. In this state, there are a number of spastic paralysis cases, some of which are under observation and treatment in various centers. The tendency at the present time is to perform less surgery and to give more education and treatment. The problem is a severe one, as we will always have these affected people on our hands.

(c) The muscular dystrophies are fortunately not too common in our vicinity, although in the practice of orthopedic surgery a number of them are presented at various clinics and in private practice. These dystrophies are often hereditary, and some are manifested at birth, while others wait until puberty to appear. The essential process in most of these is a simple muscular atrophy. In some, there is more than just atrophy, since the muscles look quite large and bulky, and pathological studies reveal deposits of fat in the affected muscles. Most of them are characterized by gradual and progressive loss of muscle strength, with no definite evidence of any central nervous system lesions. There is no evidence that the condition is a manifestation of syphilis. There may be associated central nervous system disorders along with it, such as idiocy, epilepsy, and optic atrophy. The diagnosis rarely offers any difficulty and the progressive nature of the lesions makes the answer more obvious. The gait disturbance, the exaggerated lumbar lordosis, the swaying from side to side, and the steppage gait, along with the pathognomonic Gower's sign of legs climbing, and the relaxation of the shoulder girdle muscles all give ease to the diagnosis. There is no known treatment for it at the present time.

4. TRAUMA

Trauma in relation to childhood is a slightly different problem from that of adult individuals. It must be remembered that the surgeon is dealing with rapidly growing tissue, associated with the presence of open epiphyses, and in a group of individuals whose tissues are very reactive and where healing is quite rapid. Trauma is quite frequent in the active child in relation to the bones and joints, and with early diagnosis, and smaller tissues, restoration of fractures is not as difficult as in the older individual. In fractures of long bones, restoration of length and alignment is of primary importance. Accurate reapposition of fracture fragments is not as important in the child as in the adult, as repair is a much more rapid process. Open reduction is rarely indicated in shaft fractures unless there is definite evidence of interposition of soft tissues between the fragmented ends. At the distal and proximal ends of long bones, fractures or dislocations through the epiphyseal line must be accurately studied and the epiphysis accurately restored. Even then, the parents must be told that even minor trauma can cause sealing of the epiphysis and loss of growth from that end of the bone, so that discrepancies of length may appear at a later age. It is, therefore, important that these children, even in mild cases, be followed for a longer period of

time, to determine if deformities of angulation or shortening will ensue. There are certain exceptions to the no surgery rule, the prime example being the median epicondyle of the humerus, which usually is broken off and lies free in the joint with its face reversed from its donor site. As a general rule, however, moulding occurs with the healing of the fracture, and if length and alignment are maintained, the results will be eminently satisfactory.

5. STATIC INVOLVEMENTS

Static involvements of the body are of primary importance in the young child. One is made aware at the present time of the importance of this by the numerous children being referred to the orthopedic surgeon because of such deformities as pronated and flattened feet, knock-knees, bowlegs, and the problems of poor posture. It is gratifying to know that the medical profession at large is becoming aware of these deformities in early life, when simple measures will cause a recession so that permanent defects will not follow in later life. The problems of knock-knee and bowlegs are similar in character, both being derived from the same type of process, it is believed. The baby begins to walk and holds it feet wide apart to maintain balance. This causes the weight line to be protracted from the trunk to the interval between the dependent lower extremities, and the weight is, therefore, borne on the inner borders of both feet. The use of the diaper between the thighs only adds to this problem. The weight bearing line then being shifted to the inner side of the lower extremities causes more pressure on the epiphyses on the inner side, and results in many instances in knock-knee and bowlegs. A secondary result later in life is flattening of the longitudinal arches. This whole process is increased by the deficiency in vitamins, or by hereditary tendencies, or, in some instances, by extreme obesity in the infant. The problem of the orthopedic surgeon in these milder cases is to apply corrections to satisfactory type shoes to shift the weight line back to its normal position and recreate the same line-up that was present before the knock-knee or bowleg resulted. Adjunct therapy with the referring physician by the use of a sufficient amount of vitamins seems to increase the healing process, since it is known that with the deficiency diseases, such as the lack of vitamin D in rickets, there is a predisposition to the severity of the deformity. As far as general postural measures are concerned, prevention is the best cure for postural deformities. In early childhood, it is not possible to give instructions in preventive treatment of postural abnormalities, but after the fifth or sixth year, the child may be encouraged or instructed in proper methods of carriage and exercise. After the tenth or twelfth year, when the boy or girl is aware of himself or herself, gymnastic exercises for the purpose of correcting the deformities present may be instituted.

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PEDIATRIC SURGERY— ROENTGENOLOGY

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NEW ORLEANS

For reasons of coherence, this part of the discussion will be restricted to the subjects already considered by my colleagues. I shall attempt to present the material in the same sequence and to illustrate the points made. Some critical evaluation of roentgen technic and diagnosis also is in order.

ESOPHAGEAL ATRESIA AND TRACHEO-ESOPHAGEAL FISTULA

Visualization of the esophagus with a water barium suspension is quite satisfactory as a routine procedure, the findings in the normal infant being quite similar to those of the adult. However, where obstruction is suspected and there is danger of introducing contrast material into the tracheobronchial tree either by a spill over from the larynx or by way of a fistula, lipiodol should be substituted for the barium suspension. Iodized oil is consequently the medium of choice in infants whose esophagus is atretic or stenotic or who have a tracheal or bronchial communication.

Fistulae without atresia usually lie near the bifurcation of the trachea. Their exact

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position and dimensions are better demonstrated when the patient is prone. A small quantity of lipiodol introduced through a catheter will then readily outline the fistulous tract. Continued passage of the catheter into the stomach proves the patency of the lower esophagus.

The lower end of the blind proximal portion of an atretic esophagus is most often found in the upper thorax. Passage of the catheter introduced under fluoroscopic control will be blocked at this point and the catheter will coil on itself. Instillation of a very small quantity of iodized oil graphically outlines the blind pouch which sometimes is delineated by its air content and so may be visible on an initial scout film. The presence of air in the gastrointestinal tract indicates that the atresia is of the more common type (over 70 per cent) with communication of the lower eesophageal segment and the trachea or bronchi. Where both segments end blindly, no air can enter the stomach. It is impossible to determine the length of the atretic segment because the lower esophagus cannot be fully distended. Stenosis of the esophagus is rare. The stenosing membranous diaphragm or web described by Vinson must be exceedingly rare.

INTESTINAL ATRESIA AND STENOSIS

In general complete obstruction of the bowel is more common in the lower small intestine; whereas partial occlusions are more frequent in the duodenum. This difference is more striking when one includes those incomplete and often intermittent obstructions of the duodenum due to extrinsic lesions such as peritoneal folds associated with incomplete rotation of the bowel and midgut volvulus. The complete obstruction is of course characterized by absolute absence of gas below the obstructed segment while the stenotic lesions exhibit the usual phenomena of incomplete obstruction, namely, distended bowel above and gas containing, but collapsed bowel below. Unless a complete obstruction obviously is very high, it is better not to attempt to visualize or localize the point of obstruction with opaque medium. This procedure wastes time, adds little pertinent information and does not exclude the possibility that there may be other atretic segments distal to that which is responsible for the obvious obstruction. I should advise also cautious use of opaque enemas to localize a distally situated obstruction. The large bowel, particularly the right side in patients with ileal atresia, may be very thin and may be perforated by the hydrostatic pressure of the enema. This caution is especially applicable to premature infants. Stenoses, on the other hand, may be fully investigated by the routine methods including always serial interval films of the small bowel. It is only thus that the precise site of the obstruction can be localized and possibly some distinction between intrinsic and extrinsic block made. Demonstration of malrotation or unattached mesentery may explain intermittent episodes of obstruction even when the child is in a free interval at the time of examination.

IMPERFORATION OF THE RECTUM AND ANUS

The demonstration of rectal or anal atresia usually is not difficult. Sufficient time is allowed for air and gas to enter the distal bowel (twenty-four hours after birth) and the patient is then radiographed in an inverted position with an opaque marker at the usual position of the anus. It must be borne in mind, however, that all the meconium in the blind end of the rectal pouch may not be displaced by air and that the apparent thickness of the septum may therefore be increased. The frequently associated communication with the urogenital tract is best visualized by instillation of iodized oil into the external orifice of the fistulous tract.

MALROTATION

The common anomalies of rotation which may be visualized on roentgenograms are demonstrable by oral administration of barium when the patient is relatively asymptomatic or the obstruction obviously is very high. Opaque enemas are to be preferred if there are signs of partial obstruction below the duodenum. Complete failure of rotation with the small bowel in the right side of the abdomen and the colon on the left usually does not produce symptoms.

When rotation is incomplete the cecum may lie in the right side of the epigastrium or the right hypochondrium. Bands pass from it or the ascending colon to the posterolateral aspect of the abdominal wall across the second portion of the duodenum and narow it by extrinsic pressure. This narrowing and the abnormal position of the right colon may be the only positive finding, unless the unattached mesentery of the midgut actually is producing an obstructive volvulus at the time of the examination. The volvulus may develop while the roentgen study is in progress and for this reason it is advisable to expose serial interval films. In some cases the rotation of the cecum is complete, but both the cecum and the small gut mesentery are unattached. Under these circumstances a roentgen diagnosis is difficult unless preternatural mobility of the cecum is recognized on manipulation under fluoroscopic control or there is variability of the position of the right colon and lower ileum. In reversed rotation the cecum passes behind the superior mesenteric artery and duodenum and occupies a variable position in the abdomen.

DIAPHRAGMATIC HERNIA

These hernias are almost always congenital and present little difficulty in diagnosis except in those rare instances where only a part of the liver herniates through a defect in the right leaf or only the spleen through a break in the continuity of the left leaf. Three common sites are through the posterolateral portion (old pleural peritoneal canal or foramen of Bochdalek), through the esophageal hiatus and through the retrosternal space (foramen of Morgagni). Rare hernias through the vascular apertures also are described. The diagnosis usually is evident on scout films which show compression of the ipsilateral lung, displacement of the mediastinum to the opposite side and gas containing bowel loops in the thoracic cavity. Fluoroscopy and films after ingestion of barium will demonstrate the position of the defect and give some clue as to its size. The study with opaque medium may be the only way to discover esophageal hiatus hernias and to determine whether they are true hernias or partially intrathoracic segments of the stomach associated with a congenitally short esophagus.

DUPLICATION OF THE ALIMENTARY TRACT

Duplication of the alimentary tract may present at any level, but is most frequent in the small bowel. The duplicated segments may be palpable and may cause obstruction or rarely bleeding. Those few which communicate with the lumen of the bowel may be directly identified by contrast filling; duplications of the esophagus may be brought into relief against the air filled lungs and rectal duplications may displace the bowel forward from the hollow of the sacrum and thus be recognized. However, the vast majority, if indeed they are seen at all, will appear as nonspecific mass lesions which displace or impress some segment of the gastrointestinal tract. They will be indistinguishable from connective tissue tumors arising from the deeper layers of the bowel wall and from mesenteric cysts. Differentiation between a rectal duplication and an anterior meningocele may be difficult if there is no gross defect of the lumbar or sacral vertebrae. One should in every instance, where a large extra-intestinal mass is demonstrated, make certain that it does not represent a retroperitoneal tumor, especially a renal embryoma. These tumors may come off the lower pole of the kidney and present in the center of the abdomen.

PYLORIC STENOSIS

In the past and even in some fairly recent literature, multiple criteria for the roentgen diagnosis of congenital hypertrophic pyloric stenosis have been offered. These are concerned almost entirely with secondary phenomena of obstruction at the outlet of the stomach. Among them are gastric dilatation, retention, thickening of the gastric wall and hyperperistalsis. Actually no one or no combination of these findings suffices to warrant an unqualified diagnosis. The only characteristic finding is narrowing and elongation of the pyloric canal. This can be demonstrated in every case which is adequately studied.

MECONIUM ILEUS

The roentgen diagnosis of meconium

ileum is difficult. The distended loops contain a granular material which represents the inspissated meconium and do not as a rule show fluid levels in films made with the patient erect. If contrast material is introduced into the large bowel, a procedure which is not altogether without hazard, the colon is found to be collapsed.

INTUSSUSCEPTION

Usually obstructive intussusception of infancy is of an ileocolic or ileoileocolic type and is readily and conclusively diagnosed by administration of an opaque enema. No patient suspected of intussusception should have barium by mouth. There is noted an abrupt concave ending of the contrast stream which bifurcates as the barium insinuates itself between the outer and middle cylinders of the intussusception. Plication of the bowel wall by the pull of the small intestinal mesentery produces a coiled spiral pattern. As the effect of the hydrostatic pressure is prolonged, the site of obstruction, which usually is in the proximal half of the colon, although it may be at any level, shifts toward the ileocecal valve and the intussusception may be completely reduced. There has been some controversy about the desirability of hydrostatic reduction as a preferred and relatively harmless therapeutic measure. Transient recurrent segmental small bowel intussusception has been described recently as one cause for intermittent abdominal distress in children.

HERNIAS

It is possible to demonstrate internal hernias in children just as in adults. The other hernias, as for example, umbilical, inguinal, and obturator hernias also may be visualized in gastrointestinal studies or may produce intestinal obstruction of a nonspecific type with discovery of the etiological factor at the time of operation.

CONGENITAL MALFORMATIONS OF BONES

Of the many congenital malformations, only those which are common and amenable to surgical correction are considered.

Polydactylism is an error of segmentation of the primordial skeleton (oversegmentation). Oversegmentation is rare above the wrists and ankles and affects the metacarpals (or metatarsals) and phalanges more frequently than the carpals or tarsals. Undersegmentation leads to syndactilism and irregular segmentation to malformation of the small bones of the hands and feet (Caffey). The roentgenograms are self explanatory and require only description.

The most common variety of congenital clubfoot is talipes equino varus. The three chief components of the deformity, inversion, medial deviation, and plantar flexion are readily visualized on dorsoplantar and lateral radiographs. These serve also to guide the orthopedist in evaluating the results of his therapy. Inversion is manifested by superimposition of the anterior ends of the calcaneus and talus on the dorsoplantar film. This results from medial shifting of the calcaneus under the talus. Normally and after satisfactory correction, the talus is directed toward the base of the first metatarsal and the calcaneus toward the interval between the bases of the fourth and fifth metatarsals. Medial deviation or adduction of the forefoot is evident from internal displacement of the navicular in relation to the talus and by gross medial deviation of the forefoot. Plantar flexion is recognized from the lateral film which shows the talus riding forward in relation to the tibia and projecting well beyond the calcaneus, which is drawn posteriorly and upward to approach the tibia.

The diagnosis of congenital dislocation of the hip is difficult only in the first weeks of life when the articular surfaces still are largely cartilagenous. Even then asymmetry of the pubocoxofemoral curve and abnormal mobility when traction and reverse traction are exerted on the femur will be diagnostic. Later, after the osseous nucleus of the femoral capital epiphysis appears, there is visible a subluxation or gross dislocation. In the latter instance, the hypoplastic epiphyseal center is situated in a shallow depression in the body of the ileum above the poorly cupped, sloping roofed acetabulum. The femoral neck is anteverted.

The function of the roentgenologist in the matter of congenital torticollis is solely to

rule out the presence of osseous anomalies of the cervical spine.

INFECTION

Osteomyelitis almost always is suspected clinically ten to fourteen days before the earliest changes are visible on roentgenograms. These serve chiefly to confirm the diagnosis, determine the extent and site of the lesion and follow its course. Before the advent of the sulfa drugs and antibiotics, there were demonstrated, first, small radiolucent areas of bone necrosis which might remain limited to the metaphyseal region or extend through much of the shaft and, shortly thereafter, calcification in the periostium stripped up by subperiosteal abscess. Later the involucrum became thicker, denser and less irregular while the sequestrated shaft might remain entombed or be extruded through cloacae. The chief signs of renewed activity in chronic infections were recurrent osteoperiostitis, central abscess formation and sequestration. Arthritis, pathological fractures and growth disturbances were frequent complications. It is often possible now to abort the disease or to shorten and ameliorate its course so that the roentgen findings remain minimal and sometimes are so atypical that they can only be interpreted in light of the history and clinical data.

Localized pyogenic abscesses of bone present as a central cavity surrounded by a sclerotic capsule with subperiosteal new bone formation limited to the level of the abscess and of moderate extent. If the abscess is small and subcortical or intracortical and the osteoperiosteal reaction is dense, differentiation from osteoid osteoma may be impossible. Nonsuppurative sclerosing osteomyelitis (Garré's disease) is rare and may be confused with syphilitic or tuberculous diaphysitis, sclerosing osteogenic sarcoma, and osteoid osteoma.

Epiphysitis may be primary or secondary. The lesion may remain localized, but frequently extends into the joint and may cross the metaphyseal plate to the shaft. Once extension has occurred, it may then be difficult to determine which is the primary focus. Extension into the joint results in suppurative arthritis while involvement of the cartilagenous plate implies growth disturbance.

SEPTIC OR SUPPURATIVE ARTHRITIS

The disease is manifested early by thickening of the capsule and pericapsular soft tissues and by accumulation of exudative fluid within the joint, distending it and widening the joint space. The regional bones become decalcified. At this stage pathological subluxation may occur. In severe progressive infections, erosion and destruction of the cartilage develop, particularly at points of greater pressure. The joint space then becomes narrow and the subchondral bone is exposed and eroded. If the epiphyseal plate is involved, epiphysiolysis may occur, the completely detached epiphysis lying free in the joint cavity. Healing in these severe cases takes place by fibrous or bony ankylosis. Here again the sulfa drugs and antibiotics have markedly influenced the natural course of the disease.

TUBERCULOSIS

My personal experience with bone and joint tuberculosis is quite limited. Most of the lesions in the spine have been of the common intervertebral type, involving a disc and two adjacent bodies with narrowing of the disc, collapse of the anterior portions of the bodies and kyphosis. Tuberculous spondylitis may also present in the form of a central abscess in the vertebral body, anterior marginal erosion by extension beneath the anterior longitudinal ligament and localized disease of the pedicles, laminae, or processes. Paravertebral abscesses accompany the osseous lesions.

In the extremities, diaphysitis and tuberculids (sarcoids) are rare in comparison with metaphysitis and epiphysitis. These reveal themselves as small, well defined defects in the metaphysis or the epiphysis much like those of pyogenic epiphysitis. Two lesions may face each other across the metaphyseal line, or if the joint is involved across the joint space. When the process extends into the joint, the characteristic signs of synovitis develop.

When the disease is primary in the joint, there appear first distention of the joint space and diffuse osteoporosis of the neighboring bones or of the affected extremity.

The tuberculous granulation tissue destroys first those portions of the cartilage which are not in contact so that the joint space may be long maintained in the weight bearing area. Finally the articular cartilages are entirely destroyed and the subchondral bone is universally eroded. Cold abscesses may appear. They tend to drain dependently and often contain calcareous material.

TRAUMATIC LESIONS

Simple fractures in childhood resemble those of adult life, except insofar as they are influenced by the greater elasticity of youthful bone. Incomplete fractures consequently are more frequent. They may appear as hairline radiolucent shadows which are visible only upon close inspection of first quality films, or as minor bucklings of the cortex without a fracture line. The long bones may be considerably bowed or angulated in the absence of complete fractures. Sometimes there is no immediate evidence of fracture, but later demonstration of subperiosteal callus which may be excessive if the fragments are not immobilized, proves that the bone was broken. Normal vascular channels should not be mistaken for fissure fractures nor should accessory bones or ununited apophyses lead to an erroneous diagnosis of avulsion fracture with separation of cortical fragments. In case of doubt, examination of the contralateral extremity will be most helpful. Epiphyseal separations are of course peculiar to childhood and may involve any epiphysis although the epiphysis at the distal end of the radius is by far the most frequently affected. There always is an associated fracture of the juxta-epiphysial segment of the shaft. These lesions usually are readily visualized, but may call for careful scrutiny of the roentgenograms if the displacement is minimal or if there has been partial or complete spontaneous reduction. In the latter instance, there will be no residual deformity.

Epiphyseolysis and juvenile osteochondrosis although not strictly traumatic conditions often are first manifest after injury which may be trivial and are briefly considered here.

Slipping of the femoral capital epiphysis is a lesion of adolescence and the very early changes are similar to those of Perthe's disease, namely widening of the epiphysial line with irregular decalcification in the juxta-epiphysial border of the neck. Usually some displacement already is present when the patient is first seen and can be recognized on good anteroposterior and lateral radiographs which show the entire pelvis including both hips. The epiphysis maintains it relation to the acetabulum, the neck being displaced upward and laterally. The patient should be reexamined at intervals since displacement may recur after adequate reduction.

Juvenile osteochondrosis or focal aseptic necrosis may develop in many sites. Among the most common are the upper end of the femur (Perthe's disease), the tarsal scaphoid (Koehler's disease), the tibial tubercle (Osgood Schlatter's disease) and the medial tibial condyle (Blount's disease). Apophysitis of the calcaneus may be a clinical entity, but cannot be diagnosed roentgenologically since all calcaneal apophyses in a certain stage of development appear fragmented and very dense. Osgood Schlatter's disease probably is diagnosed more frequently than it occurs for the tibial tubercle may develop from more than one center and may be irregular in outline. There must be actual fragmentation with displacement of fragments away from the shaft and localized swelling of the overlying soft tissues to permit an unqualified diagnosis.

It is advantageous to examine Perthe's disease and Blount's disease (tibia vara or aseptic necrosis of the medial tibial condyle) in some detail since proper management of these conditions is requisite if severe deformities are to be prevented or corrected. The first sign of Perthe's disease is widening of the epiphysial line with irregularity of the marginal bone of the femoral neck. The head still appears intact and the articular capsule is distended. Later, necrosis of the head is observed. The marginal bone along the proximal side of the epiphysial line is eroded and there is

variable density of the head. The capital epiphysis then flattens, broadens and is grossly fragmented. The neck becomes shortened and broad. Approximately eighteen months after the onset of the disease, recalcifications begins, first in the neck and then in the head. The entire course of the disease approximates four years. During all this time the joint space is maintained or slightly widened. Interval studies are necessary to follow the course of the disease, determine when healing has occurred and assess the final deformity.

Aseptic necrosis of the medial tibial condyle may develop during infancy or in childhood. The necrotic segment exhibits characteristic changes in texture and density and becomes flattened and beaked. Depression of the overlying medial portion of the epiphysis ensues and produces lateral bowing of the leg. The deformity is enhanced by a differential rate of closure of the lateral and medial portions of the cartilage plate.

Dislocations in childhood are in general like those of adult life. In infancy, dislocation of the shoulder may accompany Erb's palsy. Congenital dislocation of the hip already has been discussed.

THE MATTING SYNDROME: A TYPE OF INTESTINAL OBSTRUCTION

WITH A REVIEW OF 60 CASES OF INTESTINAL OBSTRUCTION*

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NEW ORLEANS

On our private services during the five year period from January 1946 to January 1951, 58 patients underwent 60 operations during the course of which findings indicated acute or complete obstruction in 36 instances and chronic or partial obstruction in 24. Some of the latter were recurrent, partial obstructions. Among the acute cases, the diagnosis was intestinal obstruction either of a nonspecified or a specified type in 32 of the 36 instances. Twice the preoperative diagnosis was acute appendicitis and once it was perforated peptic ulcer. Once the diagnosis was a mass. Intussusception was known to be present in 2 cases before operation and once it was unexpectedly found at operation. Strangulated hernia was the cause of operative obstruction in 2 patients. Congenital obstructions were operated upon in 6 babies. Paralytic ileus of a very severe type without peritonitis following a kidney operation necessitated a colostomy in 1 patient. It is the only case of paralytic obstruction in the entire series. The causes of the obstruction in the acute cases are given in Table 1.

TABLE 1
CAUSES OF OBSTRUCTION IN 36 ACUTE CASES

Bands and adhesions (congenital 1)	16
Clockwise rotation and congenital band	2
Atresia small intestine	3
Imperforate anus	3
Intussusception	3
Hernia (strangulated)	2
Foreign body	2
Internal hernias	2
Mesenteric thrombosis	1
Volvulus	1
Paralytic ileus	1
Total	36

The causes of obstruction in the 24 cases with chronic or recurrent partial obstruction are shown in Table 2.

TABLE 2
CAUSES OF OBSTRUCTION IN 24 CHRONIC CASES

Matting syndrome	8
Acquired adhesive band	2
Congenital peritoneal band	7
Endometriosis	2
Hernia	2
Diverticulitis	2
Megacolon	1
Total	24

There were 14 children 4 years of age or younger in the entire group. Three of these had an imperforate anus, for 1 of whom an abdominoperineal pull-through operation was performed; 3 had congenital atresia; 3 had congenital bands, 2 of which had associated clockwise rotation; 2 had intussusception; 1 each had strangulated hernia,

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megacolon, and a postoperative intestinal obstruction.

A characteristic "matting syndrome" is making its appearance much more frequently. Such patients have been operated upon before, usually for pelvic trouble or for acute appendicitis which had to be "drained". Several years after the previous operation, this group of patients begins to have pain and soreness in the right lower quadrant of the abdomen and in the region of the abdominal wall scar. A vague indefinite sensation of nausea may accompany the attacks of soreness. Some patients complain of a sensation of a "knot" in the abdomen under the scar. The attacks seldom get to the stage of a severe, acute condition with cramps and nausea and vomiting. At first they are intermittent but become more intense and occur more frequently. Persistence of soreness is a characteristic feature of the syndrome. Constipation is an associated symptom and it may or may not have been present prior to the onset of the present trouble. Objectively, the patient is usually well nourished. They do not look sick and the examination may be negative except for the abdomen where two findings are apt to be encountered: a mild amount of tenderness in the region of the old wound, and a sensation of an indefinite mass or resistence in that area. Auscultation does not reveal additional evidence to help in the diagnosis. Usually there is no distention at the time of the examination though it may be present in one of the attacks. Laboratory work is usually reported negative and gives surprisingly little information. Gastrointestinal series, even when the roentgenologist has been instructed to take roentgenograms for small bowel stasis will be reported negative. These patients should be carefully evaluated for emotional and functional factors and usually they are found to be sound and not unstable. This is of additional help in confirming the impression which the surgeon justifiably has under such circumstances, that is, that the patient has "matting syndrome," a type of partial intestinal obstruction with recurrent exacerbations. The objective findings at operation are always more or less true to a form and characteristic in their appearance. The omentum and small bowel, are adherent to the abdominal wall in the region of the wound. The omentum is thickened and scarred and indurated and in some instances is actually edematous. It is heavy and instead of being a fine veil of soft fat, it is thick and hard in consistency. In addition to this, it is firmly adherent to one or more loops of bowel and the bowel is adherent to the adjacent intestine and, most important of the findings, which proves the legitimacy of the diagnosis, the small intestine proximal to this area is dilated and hypertrophied so conclusively that everyone at the operating table agrees that at least this evidence of partial obstruction is present in spite of a negative roentgenographic examination. The histories of 2 such patients are reported.

CASE REPORTS

Case No. 1. Mrs. W. A., age 50, came under our care in January 1948, because of recurrent attacks of cramping pain in the right lower quadrant of the abdomen. The significant past history was that in 1918 she had had an appendectomy, and in 1942 she had an operation elsewhere for adhesions, presumably because of the same type of pain. General examination was essentially negative except for a tender, definite, but nondiscrete mass in the right lower quadrant of the abdomen. The uterus was slightly enlarged and contained fibroids. Laboratory work, including a cholecystogram, was within normal limits. The diagnosis of partial intestinal obstruction with matting syndrome involving the omentum, small bowel and cecum was made, and operation was advised but the patient declined. During the next few months, her symptoms increased in severity. She had more intense pain. She did not return for operation until September 1948. At operation, a mass of omentum was found attached to the ascending and transverse colon with definite constriction of the middle of the ascending colon and ballooning of the cecum and ascending colon proximal to this. In addition, she had adhesions with a sharp kink in the terminal ileum and dilatation and marked hypertrophy proximal to this showing definite evidence of partial obstruction. The entire mass of omentum was removed. The adhesions were severed. Subsequently, hysterectomy was done for bleeding fibroids of the uterus. The patient was re-examined in May 1950, and was found to be entirely well except for some back pain which was not the type of complaint for which she was operated upon. She has been relieved of all abdominal symptoms.

Case No. 2. Miss L. G., age 46, complained of

tenderness and pain in the right lower quadrant of the abdomen, the duration of which was five years. She had a ruptured appendix with peritonitis in 1918. An appendectomy was performed at that time. Because of pain and soreness in the region of the incision in 1948, an operation was performed elsewhere; an old scar was removed and adhesions were released. There was temporary relief from the pain following this, but for the past five years she has had more or less constant and mildly annoying pain but with exacerbations. There has been some constipation and occasional mild diarrhea. When she came under our care in August 1950, examination revealed good nutrition. The abdomen was scaphoid, and there was a palpable indefinite mass in the right lower quadrant in the region of the scar. This was tender and sensitive, expressed by the patient as being "sore". Laboratory work was essentially normal. A gastrointestinal roentgenographic examination was reported negative. No evidence of stasis in the small bowel was found. Diagnosis of partial intestinal obstruction and matting syndrome was made. After preparation, she was operated upon on September 4, 1950. The omentum was found to be adherent to the old scar. It was indurated and matted in the right lower quadrant, angulating the cecum and ascending colon very sharply. The consistency of the omentum was firm, much harder than a normal omentum. The cecum and ascending colon were adherent to the omentum. And this was all adherent to the transverse colon. The adhesions were all freed, and the thickened matted omentum was completely excised. There was a congenital type veil over the cecum and this was freed by incising it. Exploration otherwise revealed a normal gallbladder. The appendix had been removed. The uterus was retroverted. This was corrected by suturing the round ligaments onto its posterior surface. The patient was re-examined in February 1951, five months postoperatively. She was very much improved and she was very grateful. She occasionally had 3 or 4 soft stools during a day. Investigation did not reveal the cause of this. She had been relieved of pain and soreness in the abdomen. Abdominal examination was objectively negative.

These two cases are very typical of matting syndrome. The diagnosis must be made on clinical findings and cannot be substantiated by laboratory or roentgenograph findings. As is indicated above, they cannot be cured by simply releasing the adhesions at operation. Both patients had been operated upon elsewhere and presumably lysis of adhesions was performed. It is necessary to remove the wadded indurated omentum entirely and release the adhesions carefully and in some instances to resect segments of intestine which are matted together by adhesions. In one of our cases we felt it necessary to resect 3 segments of intestine (1 in the jejunoileum, 1 in the terminal ileum and 1 in the colon). Only by such radical effort was she cured, for prior to coming under our care she had had some 18 operations, 7 of which were for intestinal obstruction. Foreign materials such as papain, heparin and amniotic fluid have been suggested for combating the tendency to reformation of adhesions. These have never been generally accepted, probably because they are not reliably effective. A better attitude is boldly to resect badly adherent bowel loops. This explains why intestinal resections were performed in 25 per cent of our cases, a relatively high incidence.

MANAGEMENT OF INTESTINAL OBSTRUCTION

Because of numerous advances modifying its course, the surgical management of intestinal obstruction is changing radically. In the preoperative phase antibiotics, blood transfusions, intestinal decompression, and fluid and electrolyte replacement all help to make the patient look much less sick than he actually may be. This is particularly true in strangulated obstruction. Twice during this series we waited; once a period of twenty-four hours and again a period of twelve hours with the patient under our observation, receiving antibiotics, until at operation the bowel was found to be gangrenous; perfectly black. The patients did not look very sick; they were being decompressed and prepared for operation. In both of these instances the patients fortunately recovered, but such examples emphasize how seriously delays may jeopardize a favorable outcome. When the diagnosis is made, operation should be done promptly. Decompressive measures are not indicated over a long period of time; a few hours being all that is necessary to get a patient into proper condition in most instances of acute intestinal obstruction. Even in the absence of severe tenderness strangulation is a possibility. A lesson we have learned from such findings at operation is not to delay, or to be satisfied with the relative comfort obtained by decompression with

the Miller-Abbott tube, and also, that a false sense of security may be suggested by absence of toxemia, which in reality is only suppressed in its systemic manifestations by antibiotics.

At operation the first principle and one which should always be insisted upon is adequate exposure. A large incision should be made and in infants the entire gastrointestinal tract should be lifted out through the incision so that complete inspection may be easily obtained. In infants it is necessary to look immediately for false attachments of a high cecum and failure of counterclockwise rotation into the normal position. Abnormal rotations are usually in the clockwise direction and it is possible that the small bowel may have to be unwound around its mesenteric attachments. Preoperative roentgenograms may give very accurate indications as to the level of the obstruction but one should not depend on that being the only obstruction. The entire gastrointestinal tract should be carefully inspected. And then whatsoever technical procedure is indicated should be carried out. In the adult, exposure is likewise very important. It is never satisfactory simply to lift out a piece of the ileum or small bowel and do an enterostomy. One must remove the bowel from the abdomen without fear of the difficulty of replacing it even though it is badly distended. One must be absolutely sure that the obstruction has been found and obviated. If necessary, resection of the intestine should be instituted. If there is any doubt as to the viability of the bowel, resection had better be carried out sufficiently wide to obtain clearance into a less edematous portion of the bowel. Under special conditions such as mesenteric thrombosis, a very wide resection should be made in order to prevent the propagation of the thrombus into the then viable segment of the intestine.

If the bowel is tremendously distended, decompression by insertion of a suction tip into the bowel is not only permissible but probably is a technical measure of advantage. We have not hesitated to use this, particularly where there may be some difficulty replacing bowel which is badly distended. Williams and Williams reported remarkable recovery of 12 to 14 desperately ill patients treated by this method. A further technical method of value is the employment of enterostomy. The size of the tube has to be judged by the size of the bowel, and a very long peritoneal tunnel must be employed to prevent the danger of fistula. In severely obstructed cases with peritonitis, in order to diminish the prolonged necessity of using an indwelling transesophageal gastric decompression tube, we put in one, two, or three enterostomy tubes at various levels in the small intestine. An enterostomy tube proximal to an anastomosis may be a life-saving measure and it always should be employed when an anastomosis is made. Even in infants, if there has been congenital atresia, a very fine catheter in the dilated proximal segment may protect the anastomosis as the distal undeveloped bowel gradually dilates. Moreover, it helps as an irrigating means to soften the meconium and inspissating material in the bowel in the obstructed infant. Multiple decompressive enterostomies may, after further trial, be found of great help in certain cases of obstruction with severe distention and peritonitis.

In the cases of chronic intestinal obstruction with matting syndrome, one of the very important procedures is to remove the entire omentum. In this group of cases the omentum was resected in 8 instances, 2 of which were in acute cases and 6 were in the group with chronic partial intestinal obstruction.

Resection of intestine is indicated, not only when there is strangulation with evidences of nonviability, but also in the chronic cases where there is matting and severe adhesions. The latter type of case was formerly managed by separating all adhesions carefully and sometimes by employing a substance such as amniotic fluid, papain or heparin to prevent their recurrence. But this type of therapy has not been corroborated by reports in the literature to substantiate its value. A far better idea is to resect adherent snarled loops of bowel. When there is marked matting and angu-

iation of the bowel with multiple adhesions, omentectomy and separation of the adhesions only, may not be sufficient. If necessary, bowel resection should be undertaken to prevent the recurrence of chronic or acute obstruction.

Four of the patients on whom we operated died. Two of these were infants with congenital obstruction; one was a seven-month premature twin with an atresia at the upper end of the jejunum. A duodenojejunostomy was accomplished, and although after operation air progressed into the distal loop the baby was too weak, apparently, to eat and propel the contents along the distal segment. We operated upon the child again. The anastomosis seemed to be open and there was no evidence of obstruction nor was there peritonitis but severe asthenia resulted in death. A second newborn infant died after duodenojejunostomy for an obstruction of the distal duodenum, from what was thought to be an aspiration pneumonia. Two adults died. One had been operated upon previously for intestinal obstruction. Exact information concerning this was not obtainable, but at the operation we performed, a complete total multiple polyposis of the entire small bowel was found. Only about 7 feet of small intestine remained, the rest had been removed. Moreover, there were two intussusceptions from large polyps and because of the totality of the polyposis the bowel was opened and the large polyps leading the intussusceptions were removed. It did not seem advisable to shorten the bowel more since the pathology could not be obviated and because so little of the intestine remained. Postoperatively, this patient developed tetany and peritonitis and died. A fourth patient developed intestinal obstruction following an abdominoperineal resection for a carcinoma of the rectum. We suspected the obstruction but delayed for about three days before intervening. Furthermore, we suspected the type of obstruction, prolapse of the loop through the pelvic peritoneal diaphragm. The delay resulted in peritonitis which was present at the time we finally decided to operate upon him. The obstructed loop was released and three different enterostomies were made. He developed small bowel fistulas and died. Of the 4 deaths, 2 were for what might be regarded as impossible situations, the seven-month premature child with atresia, and the patient with total polyposis of the small intestine and a short bowel. The loss of the man with intestinal obstruction for prolapsed loop of ileum through the pelvic diaphragm was largely due to poor judgment and procrastination. His bad general condition in the presence of carcinoma and the previous operation contributed to the breakdown of the enterostomy tunnels, with resulting fistula which, try as we did by conservative and surgical means, we could not control in the presence of the severe plastic peritonitis. Fistula is one of the dangers of enterostomy but, though it may add to the risk, it may be a life-saving measure in some instances, and such a single loss is not to be taken as the conclusive evidence of its value. It is to be noted that out of 16 cases in which intestinal resections or anastomoses were done, only 2 died. There were 3 patients in whom anastomoses were made for congenital obstructions. In 13 instances in which resections were done in the face of intestinal obstruction, all survived. The increased safety in which resections may be accomplished under the modern advantages of chemotherapy and other improved surgical conditions should extend its use in cases which are apt to have recurrence of obstructions without resections.

SUMMARY

A study of 60 operations for intestinal obstruction from benign causes is reported; a relatively low incidence (6.6 per cent) of obstruction from hernias was found in the group. A relatively high incidence of obstruction from bands and adhesions was encountered. Thirty-six of the 60 cases had acute or complete obstruction and 24 had chronic or partial obstruction. Bowel resection was accomplished 13 times and in additional 3 cases anastomosis was made for atresia. The mortality rate (6.6 per

cent) is relatively low and could have been improved by prompter action in one case. The matting syndrome was described.

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CONGENITAL HEMOLYTIC JAUNDICE

REPORT OF TWO CASES

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AND

WM. FISHER, M. D.**

NEW ORLEANS

Of the three types of jaundice (hemolytic, hepatocellular, and obstructive), the one least commonly observed clinically is the hemolytic. Congenital hemolytic jaundice (chronic familial jaundice, hemolytic splenomegaly, chronic acholuric jaundice, or spherocytic or globe-cell anemia) is a form of hemolytic jaundice in which cholelithiasis is a frequent complication. The following case reports illustrate the coexistence of these two conditions, namely cholelithiasis and congenital hemolytic jaundice.

CASE REPORTS

Case No. 1: J. C., a 15 year old white school boy, presented himself to one of us because of recurrent bouts of jaundice. The patient had been delivered by cesarean section, and on discharge from the hosptial five days later, a note had been made stating he was more icteric than is usually seen, but no further investigations had been done. It is assumed this was physiological icterus neonatorum. This jaundice had cleared in a few days, according to his mother, only to recur at the age of 4 or 5 months; at this time it had lasted for several days and then gradually disappeared; there were no other manifestations so far as the mother could recall. At the age of 18 months, he had an attack of fever (up to 104°F.), vomiting, and slight jaundice lasting seven to ten days. From this age up to 7 years, he had similar attacks, about every three months. An appendectomy was done at the age of 7 years for the purpose of relieving these attacks, but they continued to occur about every six to eight months until the present time. The last bout, in April and May 1950, was manifested by profuse sweating, midepigastric and right subcostal pain, radiating to the right infrascapular area, slight fever, and jaundice. During his more recent attacks, the patient noticed dark urine and light green stools. He has had intolerance to fatty foods, especially milk and cream, for the past two years. The family history was significant in that this patient's father had an attack of jaundice at 15 years of age, and his paternal grandfather has had jaundice and anemia for many years. This patient's paternal aunt (*Case No. 2*) has had jaundice, anemia, and splenomegaly for many years.

Cholecystogram, in September 1949, revealed many stones in the gallbladder.

Physical examination revealed a well developed, underweight asthenic young man of about 15 years. There was slight jaundice of the sclerae. Heart and lung examinations were essentially negative. On abdominal examination the spleen was nonpalpable.

Laboratory data, June 7, 1950, revealed a red blood cell count of 3.6 millions and hemoglobin of 10.9 grams; white blood cells 5,850, with 40 per cent lymphocytes, 50 per cent polys., 2 per cent eosinophils, 1 per cent basophils, and 7 per cent monocytes. The red blood cells in the smear showed anisocytosis, anisochromia and some polychromatophilia; spherocytosis and microcytosis. The urine revealed a specific gravity of 1.020; slight trace of albumin, no sugar, and the sediment contained 3 to 5 WBC/HPF. Kolmer and Kahn tests were negative. Fragility test on June 9, 1950, showed beginning hemolysis at 0.50 per cent saline and complete hemolysis at 0.34 per cent, while control reading was 0.42 per cent beginning and 0.32 per cent complete. Serum bilirubin was 1.8 mg. (1 min. direct) and 6.7 mg. total. Cephalin flocculation 3 plus; icterus index 19; phosphatase 3.7 Bodanksy units; prothrombin 20.9 sec. (50 per cent of normal) and thymol turbidity 1 U.

On June 10, 1950, a cholecystectomy was done and on exploration of the abdomen, an enlarged spleen was found. Splenectomy was planned as a later procedure. He received a postoperative transfusion on June 10, 1950, and this was followed by an increase in jaundice and fever, probably a hemolytic transfusion reaction. Patient remained jaundiced until readmission.

Patient was readmitted on July 10, 1950, and a splenectomy was done on July 12, 1950. Urine examination before operation revealed a weakly positive bile test and urobilinogen weakly positive in 1:10 dilution. Serum bilirubin was 1.4 mgm. (total); icterus index nine. Hemograms before and after splenectomy are given in table 1.

TABLE 1
HEMOGRAMS

	1 day before 7/11/50	1 day after 7/13/50	2 days after 7/14/50	8 months later 3/10/51
RBC	3.67	4.32	4.18	4.72
Hb.	11.2 Gr.		14.9 Gr.	14.5 Gr.
WBC	6,000	16,700		8,250
Retics.			5.1%	2.2%
Platelets			438,900	495,600

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The patient's jaundice cleared gradually in about seven days after splenectomy. His appetite improved greatly and in four months, he gained 15 pounds, the first time he had ever gained any appreciable weight.

Case No. 2: E. L., a 43 year old white housewife, paternal aunt of patient J. C. (*Case No. 1*), complained of splenomegaly, anemia, and recurrent episodes of jaundice. She first noticed a mass in her left upper quadrant, while in bed after delivery of her last child in 1938. This was mentioned to her attending physician, who forthwith treated her with parenteral liver extract. The latter, however, had no effect as she continued having bouts of "biliousness," nausea, vomiting, and jaundice.

Physical examination revealed a well nourished and well developed white female with mild jaundice of both sclerae. Heart and lungs were essentially normal. Abdominal examination revealed a soft, nontender abdominal wall, with spleen palpable 5 cm. below the left costal margin in the anterior axillary line. Laboratory data, on June 15, 1950, showed a red blood cell count of 3.14 millions, hemoglobin 10.7 grams, total white blood cell count of 8,100, and reticulocytes 13.9 per cent. Blood smear revealed many small round spherocytes, and the characteristics of a microcytic normochromic anemia. Fragility test revealed beginning hemolysis at 0.50 per cent saline and complete hemolysis at 0.34 per cent, with control beginning at 0.42 per cent and complete at 0.32 per cent.

She entered the hospital on October 30, 1950, for splenectomy, which was done the following day. Gallstones were palpated at the time of splenectomy, but cholecystectomy was not done. She had a very stormy postoperative course, having gone into shock once on each of the first two postoperative days. Her recovery thereafter was uneventful, and on discharge, the only abnormality was an increased platelet count of 1,814,000/cu. mm. No postoperative thromboses were detected. Hemograms before and after splenectomy are shown in table 2.

TABLE 2
HEMOGRAMS

	1 Day Before Oct. 30, 1950	1 Month Later Dec. 6, 1950	4 Months Later Mar. 6, 1951
RBC	3.49	4.79	3.99
Hb.	11.6 Gr.	14.9 Gr.	12.5 Gr.
WBC	9,700	10,750	8,700
Retics.			1.7%
Platelets		924,370	

Convalescence at home was uneventful. The jaundice cleared, although the latest hemogram reveals an occasional spherocyte, and fragility is slightly increased, hemolysis beginning at 0.50 per cent saline and being complete at 0.26 per cent; control beginning at 0.42 per cent and being complete at 0.30 per cent.

DISCUSSION

Congenital hemolytic jaundice is a chronic, congenital, and often familial affection. It is characterized by three important signs: (1) jaundice; (2) splenomegaly; (3) characteristic changes in the peripheral blood, viz., anemia, spherocytosis, microcytosis, reticulocytosis, and an increased fragility (decreased resistance) of the red blood corpuscles. These signs may be so mild that the disease is not recognized until adult life.

The jaundice is of the hemolytic variety characterized by (1) an increase in serum bilirubin which produces an indirect van den Bergh reaction; (2) increased urinary and fecal urobilinogen; and (3) absence of bile pigment from the urine. The spleen is almost always enlarged in active cases and may vary from just being palpable to huge in size. The anemia results from the rapid destruction of erythrocytes, and the reticulocytosis is a response on the part of the bone marrow to increased erythrocyte destruction. Microcytosis and spherocytosis are due to the fundamental abnormality of the disease process, and increased fragility is a consequence of spherocytosis. The shape and size of the red blood cell (microspherocyte) are very typical of this disease, and the various explanations of the pathogenesis revolve about this peculiarity.

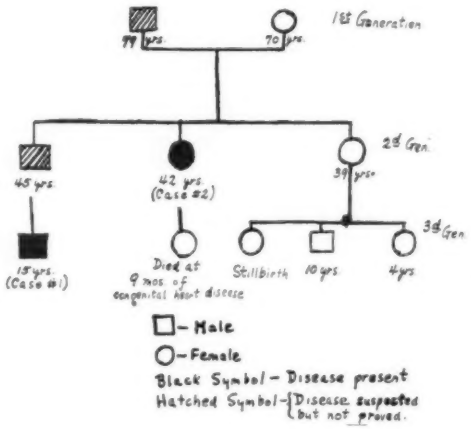
In general, it may be stated that there are two schools of thought concerning the hemolytic mechanism in congenital hemolytic jaundice. One group believes that the fundamental defect is an inherited trait of the bone marrow which causes the production of abnormal red blood cells of small diameter and great thickness (microspherocytes). These cells are spheroidal and closely approximate the form assumed by red blood cells when they are about to rupture in hypotonic saline solution. It has been generally accepted from several investigations that the increased fragility is a direct consequence of the shape of the cells. These fragile spherocytes, which are in the

precarious position of almost rupturing, are easily destroyed, and the spleen plays the major role in this process. Thus hemolysis takes place, anemia is produced, and erythropoietic hyperactivity results. This has been the usual concept until recently, when further investigations of the role of hemolysins were undertaken by Dameshek, *et al.*

Henstell and Dameshek studied the bone marrow and peripheral blood of a patient with congenital hemolytic jaundice, and found that the immature red blood cells in the bone marrow and in the peripheral blood were of normal size, although the mature red blood cells in the blood stream were microcytic. This led them to believe that the bone marrow did not produce abnormal red blood cells, but that the latter were the result of the action of some agent on the cells which had already reached the general circulation. Thus the explanation propounded by Dameshek that congenital hemolytic jaundice is due to the presence in the blood of hemolysins which make the erythrocytes more spherical and thus more fragile. In this way the red blood cells are more susceptible to the normal cell-destroying processes of the body, and anemia, hyperbilirubinemia, and increased erythropoietic activity are produced. It is felt by Dameshek that the spleen acts as (1) a stasis organ where destruction of the more fragile red cells can occur, and also (2) that it may be the site of the formation of hemolysins which originate the hemolytic process itself. From the clinical standpoint, this is most strongly indicated by the improvement occurring after splenectomy in congenital hemolytic jaundice. Hemolysins have been found in the blood of patients with acute hemolytic anemia, and also in an occasional instance of congenital hemolytic jaundice. Hemolysins in the spleen have not been demonstrated.

It is quite likely that no single explanation is applicable to congenital hemolytic jaundice, and features of both mechanisms are in operation.

Many family trees of this disease involving four or five generations have been published. The trait is transmitted as a Mendelian dominant and may be passed on by either parent. In these particular cases, the family tree is shown in figure 1.



The importance of cholelithiasis as a complication cannot be overemphasized. According to most reports cholelithiasis occurs in approximately 30 to 60 per cent of cases of congenital hemolytic jaundice. These stones are usually pure bilirubin stones and are formed as a result of the increased excretion of bilirubin in the bile. This excessive production of bilirubin is a direct consequence of the hemolytic process. In *Case No. 1*, cholelithiasis was diagnosed long before the fundamental disease process was even suspected, and the symptoms were dependent on cholelithiasis as well as on the hemolytic crises of the fundamental disease process. In *Case No. 2*, gallstones were felt by the surgeon at operation, but were not removed, due to the poor condition of the patient. It is important to keep in mind the possibility of congenital hemolytic jaundice in any relatively young person who has cholelithiasis.

The treatment of congenital hemolytic icterus is splenectomy. Results from this procedure have been uniformly beneficial. The hemolytic process is arrested, the anemia and jaundice disappear, although increased fragility remains unchanged in most cases. Spherocytosis is usually reduced or entirely disappears. The effect of splenectomy is lasting, and when failure to improve after splenectomy occurs, one must

suspect the possibility of an accessory spleen or an atypical (acquired) hemolytic icetrus. In cases complicated by cholelithiasis, splenectomy should be performed first to correct the hyperbilirubinemia (which causes stone formation) and cholecystectomy should be done later.

Despite the fact that congenital hemolytic jaundice is usually considered a mild and chronic disease, it may prove fatal. Hemolytic crises and gallstones are possibilities that constantly confront the patient until splenectomy is done. Death may occur during a hemolytic crisis or as the result of a complication of gallstones.

SUMMARY

1. Two cases of congenital hemolytic jaundice in the same family are reported.

2. Both patients had cholelithiasis, the commonest complication of congenital hemolytic jaundice.

3. Cholelithiasis in a relatively young person should always arouse the suspicion of congenital hemolytic jaundice.

4. The mechanisms of production of congenital hemolytic jaundice are discussed.

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DEVELOPMENT OF ELECTRIC SHOCK THERAPY AT EAST LOUISIANA STATE HOSPITAL

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JACKSON

"Shock therapies are now firmly entrenched both in institutional and office practices."[1]

Electric shock therapy was first used at East Louisiana State Hospital in the early autumn of 1941, under the supervision of Dr. Willard Waldron, former member of this Staff, who was the only therapist at that time. Following the resignation of Dr. Waldron, no electric shock therapy was administered until May 1944, when Dr. Charles E. Sturm became associated with the hospital. Since it was re-instituted, the number of therapists were gradually increased until at present there are five members of the Medical Staff administering this form of therapy.

The Staff was forced, under conditions which were very limited, to do their work under considerable handicap. There were only two shock machines owned by the hospital in April 1949. Therapy had to be administered on the ward and in some cases with the patients in bed. Such a procedure was time consuming since some scheduled arrangements had to be made for the electric shock therapists to use the shock machines and the trained group of assistants. This arrangement was not conducive to stimulation of increased interest, but to the contrary, all too frequently it resulted in a partial loss of interest on the part of most of the physicians. In May 1949, most of the electric shock therapy at the hospital was being administered by two physicians. Their treatments constituted over 80 per cent of the total treatments and their work was limited to the white female service of the hospital. Less than 20 per cent of the total electric shock therapy was being administered on the white male service, colored male service, colored female service, and criminally insane service. There was no such thing as intensive electric shock therapy.

At the Central Louisiana State Hospital in Pineville, Louisiana, during the early summer of 1948, Dr. Howard G. Alexander and the writer set up a treatment center. The purpose of this center was to administer E. C. T. and more particularly intensive electro convulsive therapy. The value of such a center to the patients and to that hospital proved itself many-fold.

At the East Louisiana State Hospital in May 1949, all the available space on the

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wards and in the utility buildings was being utilized. There was no place to establish a center. The wards were overcrowded and still are in many instances.

In August 1950, a new building to house the untidy white male patients and the Infirmary was made available to the hospital. An acknowledgment to our former Superintendent, Dr. Glenn J. Smith, should be here made for his untiring efforts in cooperating with the Louisiana State Hospital Board in securing funds for the erection of this sorely needed structure. This building was occupied on August 25, 1950. This move of patients eventually afforded us room to install an E. C. T. center.

The first E. C. T. center was opened on February 13, 1951. This center was made available to white male patients needing intensive treatment. It could accommodate 30 patients who received on an average of nearly 3 shocks daily, five days per week. It was soon determined that this center was inadequate to administer to the needs of all the white males urgently in need of therapy. The second unit was opened on the new building referred to above. This center cares for 50 untidy white males. The physician can administer a total of 50 treatments in a minimum of forty minutes without rushing things, thus affording him more time for his other duties.

A third center for intensive therapy was made available for the colored female service on April 9, 1951. Treatments in this center are given daily excepting Sunday, and any one patient may be given E. C. T. as frequently as 1 to 4 times daily. The patients now on treatment are for the greater part from the "back wards." Most of these colored women have a hospital age of over six years. No effort is made at this center, presently, to treat according to diagnosis as some who are now under treatment are diagnosed as manic depressive psychosis,[2] dementia praecox,[3] involutional melancholia, general paralysis, and mental deficiency with psychosis. This particular group of individuals were the worst among our colored females. Most of them had been in restraint or strong rooms or both for years due to their combative tendencies, untidiness, and destructiveness.[4] Most of these women are now out of restraint and are allowed the freedom of the ward, but are still under treatment. It is impossible to prognosticate a beautiful outcome, as far as recovery is concerned, for these unfortunate individuals. There is one irrefutable statement that can now be made and that is, "these unfortunate colored women, who are under treatment, are happier in their lives at the hospital and the hospital is improved as a result of the intensive convulsive therapy."

Intensive therapy is administered on the white female service to a lesser degree. On this service approximately 85 patients are receiving conventional convulsive therapy two to three days weekly. Plans are now being formulated for intensive E. C. T. centers for the colored male service and the white female service.

Conventional E. C. T., which was stepped up rapidly in the fall of 1949, is being continued on all services. In the criminally insane department of this hospital E. C. T. is used, but to a lesser extent than among the other services of the hospital. The reason that it is not more frequently administered on this service is that those inmates are mostly of strong paranoidal coloring and thus are far less responsive to this mode of treatment.

The hospital now owns 10 electric shock machines. Two of these machines are Model CW 47 Reiter electrostimulators which are used for:

1. Convulsive therapy.
2. Nonconvulsive prolonged stimulative therapy.[5]
3. Combined convulsive therapy and stimulative therapy.
4. For stimulative therapy and respiratory problems as in barbituate coma.

Also in our armamentarium are 4 Model B 24 Medcraft Therapy Units. These have the glissando control. In addition to these units we possess 4 Rahm Units that are now used only as emergency units in the event that any of the above units should become faulty. The Rahm Units are only capable

of administering the standard Cerletti-Bini technic.

Most of the treatments are administered with the therapy units that have the glissando control. This unit is quite simple to manipulate and its controls are handled with ease. The individual treatment is given in a minimum of time. It can be set in tenths of seconds from 0.1 second to 1 second and from 70 volts to 170 volts.

Abram E. Bennett[6] said, "The glissando technique, it seems to me, by gradual development of the seizure by gradually raising the voltage to prevent violent tonic spasms, probably will reduce the instance of fracture and seems to offer certain advantage today." In the remarks of Dr. Lothar Kalinowsky[6] it is noted, "We have been using the glissando technique for quite a while and we are not too convinced that it prevents fractures, but it certainly has no disadvantages and we still go on with it. It is very difficult to prove because in every instance previously we were lucky and never had many fractures with the standard technique."

During the past two years our records reveal that there have been 5 cases of fractures of the long bones, 1 of these patients sustaining a bilateral fracture of the femur. There were 3 acetabular fractures. Two vertebral compression fractures have been found. There has been only 1 death[7] attributed to E. C. T. During the month of May 1949, a total of 507 shock treatments were administered. During the month of April 1951, a total of 2729 treatments were given.

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MULTIPLE LARGE FIBROMYOMA OF THE CERVICAL STUMP

CASE REPORT

C. GORDON JOHNSON, M. D.*
M. DURALDE CLAIBORNE, M. D.*
NEW ORLEANS

Because fibromyoma of the cervical stump are somewhat rare with not very many cases reported in the American literature, it was thought that this case might be of interest to the general medical profession.

In 1950, 3 cases of cervical stump fibromyoma were observed by us. However, in the other 2 cases the tumors were of relatively small size. Most gynecologists today do total hysterectomies routinely in contrast to the number of subtotal hysterecomies done in former years. Cases such as these represent one of the many reasons for total hysterectomy.

CASE REPORT

The patient, a 44 year old, married female, was seen on a routine check on December 12, 1950. She stated that she had had surgery in 1934 at which time a right salpingectomy and subtotal hysterectomy were performed because of uterine fibroids and ectopic gestation. An appendectomy was performed at the same time. Since the operation she has had absolutely no vaginal bleeding or vaginal discharge. As a matter of fact, she had no gynecologic symptoms at all. She had no stress incontinence, no symptoms of prolapse or rectocele, and no symptoms of dyspareunia.

Obstetrical history: Gravida I, Para O, with a right tubal pregnancy terminated by surgery, as mentioned above.

Operations: The only operation consisted of right salpingectomy, subtotal hysterectomy, and appendectomy in 1935, as mentioned above.

Pelvic examination revealed a normal female distribution of hair, with normal vulva and vagina. Bartholin and Skene's glands were negative. The perineum was well supported with no cystocele or rectocele. The cervix was normal in size and well epithelialized. Probing the cervical canal produced no bleeding. The probe could be introduced for a distance of approximately 4 centimeters. Further examination revealed a large, orange size mass in the right lower quadrant and another mass of about the same size which filled the posterior cul-de-sac. These masses were solid, very firm and nontender and it was the impression from this

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examination that the masses represented either fibromyomata arising from the cervical stump or solid ovarian tumors.

On December 14, 1950, she was admitted to Touro Infirmary and on December 15, 1950, under spinal anesthesia a laparotomy was carried out using a lower midline abdominal incision extending from the symphysis pubis to the umbilicus. On opening the abdominal cavity the omentum was found to be adhered to the anterior abdominal wall, to the fibromyomata in the pelvis, and also to the left ovary. This omentum was freed, using sharp and blunt dissection, following which further inspection of the pelvic organs revealed three

Figure 1. Cervical stump (see arrow) with three attached fibromyoma.

fibromyomata, each about the size of a large orange matted together with the cervical stump apparently incorporated in this mass. Both ovaries were attached to the top of the mass and were approximately normal in size containing normal, small follicle cysts. The right tube had been removed previously and the left tube was found to be perfectly normal, also attached to the top of this mass. The vesico-uterine fold of the perineum was incised transversely, following which the bladder was freed from the anterior aspect of the cervix. The infundibulpelvic ligament on each side was then doubly clamped, cut, and ligated with transfixing sutures, following which the round ligament on each side was doubly clamped, cut, and ligated. The remaining portion of the broad ligament on each side of the mass in a series of steps was then doubly clamped, cut, and ligated with transfixing sutures, following which the vaginal cuff was cut away from the cervical stump in a circular fashion and the whole mass removed in toto. The vaginal cuff was then closed using a continuous suture of #1 chromic catgut, following which the round ligament and infundibulopelvic ligament were brought down on each side and attached to the lateral aspect of the vaginal cuff in an effort to support the vaginal vault. Several bleeding points in the bladder fold were ligated but because of the continued generalized ooze, it was necessary to pack the area between the bladder fold and the anterior vaginal wall with gelfoam gauze. Also, in the posterior cul-de-sac there was a generalized ooze which resulted from freeing the mass in the posterior cul-de-sac which had been very adherent. Because there were no definite bleeding points to be ligated this posterior cul-de-sac was also packed with gelfoam gauze. Also, because the posterior cul-de-sac was void of peritoneum, the sigmoid colon was brought forward and attached to the top of the vaginal cuff in an effort to close off this area. The vesico-uterine fold of perineum was then brought over the vaginal cuff to completely reperitonealize this area. The omentum was then brought down, following which the abdominal wall was closed in the usual manner.

The patient lost a moderate amount of blood during the procedure and she was given 500 cc. of blood while on the table, and also, 500 cc. of blood on returning to her room.

The pathology department at Touro Infirmary reported the tissues removed as described above. There was no part of the body of the uterus remaining in the specimen removed at this operation.

Her postoperative course in the hospital was uneventful and she was discharged from the hospital on the ninth postoperative day.

A postoperative check on January 15, 1951 revealed the abdominal incision to be well healed and supported as was the vaginal vault.

ACID-FAST NOCARDIA CAUSING AN ERRONEOUS DIAGNOSIS OF TRACHEOBRONCHIAL TUBERCULOSIS

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AND
J. L. FLOYD*
NEW ORLEANS

Although the ability of the aerobic actinomycetes (Genus Nocardia) to produce both systemic and localized disease in man is now well recognized, the fact that these organisms may also be found in the normal mouth or in the presence of chronic bronchopulmonary infection[1] is sometimes overlooked.

In smears of sputum or pus containing aerobic actinomycetes only bacillary forms may be found. Since some strains are acid-fast, differentiation from the tubercle ba-

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cillus is difficult without additional study of the organism.[2]

The following case demonstrates the above problem, and, in addition, the difficulty that may be encountered in deciding whether this organism may be causing pulmonary or systemic nocardiosis when found in the sputum of a patient with productive cough.

CASE REPORT

A 31-year-old white female was admitted to the hospital on January 20, 1949, complaining of sore throat, fever, and enlarged tender cervical lymph nodes for the previous four days. The patient had diabetes mellitus, known for the past four years and controlled by diet alone except during illness. During the previous four months respiratory infections wtih fever, sore throat, productive cough and occasional blood-streaked sputum developed every two or three weeks. Afternoon temperature of 100° F., malaise, night sweats, and a 25 pound weight loss occurred during this period. Protamine zinc insulin, 30 units daily, had been required. Past history was not contributory.

Physical examination revealed an obese white female with temperature of 103° F. The lymph nodes in the submaxillary region and the anterior cervical chain were enlarged and tender. The entire pharynx was inflamed, and there was a grayish-white exudate over both tonsils. Examination of the chest revealed only an occasional coarse rale which disappeared on coughing. The heart presented a regular rhythm and no murmurs. The spleen was not palpable. There were no other positive findings.

Blood count: Hb 16.2 gm., WBC 8,750 polymorphonuclear neutrophiles 25, monocytes 1, lymphocytes 74. Heterophile antibodies for sheep erythrocytes positive 1:56. Throat culture alpha hemolytic streptococci. Urinalysis was negative. EPA of chest was negative.

Course in hospital: Aqueous procaine penicillin 300,000 units daily was administered. Sore throat and lymphadenopathy disappeared after one week, at which time the WBC count was 7,800 with polymorphonuclear neutrophiles 24, monocytes 17, lymphocytes 59, and heterophile antibodies positive with a titer of 1:448. A diagnosis of infectious mononucleosis was made.

For six weeks following the initial acute illness she continued to have afternoon temperature of 100° F. and a cough productive of 1 to 2 ounces of mucopurulent sputum daily. During this illness her diabetes was well controlled with a 1350 calorie diet without insulin. Weight was maintained at 200 pounds.

Sputum examinations at this time revealed many acid-fast rods morphologically resembling tubercle bacilli. Repeated x-ray examinations of the chest including lordotic views of apices, stereoscopics, and obliques were all entirely normal. Tuberculin tests were not done but were known to have become positive three years previously. A diagnosis of tracheobronchial tuberculosis was entertained. Bronchoscopy performed on March 2, 1949, showed no abnormalities. Aspirations were negative for acid-fast bacilli. Three guinea pigs inoculated intraperitoneally with sputum concentrates were sacrificed at the end of six weeks, and only nonspecific granulomatous lesions were found. Sputum concentrates prepared with dilute sulfuric acid and cultured on Petragnani's medium were still negative after two months. A few acid-fast rods were found in concentrated sputum specimens once or twice weekly. X-rays of chest at fourteen day intervals continued to be negative.

On March 4, 1949, the patient was transferred to the tuberculosis hospital. During the six weeks there she was afebrile, and sputum decreased in quantity. Acid-fast bacilli were not found, and she was sent home on bed rest. For the following six months the patient was allowed only limited activity. She continued to have a productive cough. Respiratory infections manifested by sore throat and fever to 101° F. occurred once or twice monthly. Sputum examinations showed acid-fast rods with each attack but were negative between infections. X-rays of chest at monthly intervals continued to be negative. On July 9, 1949, tonsillectomy was performed, and serial sections showed only normal tonsillar tissue. Dihydrostreptomycin, 0.5 gm. daily for thirty days, was administered after tonsillectomy.

During a respiratory infection in October, 1949, the sputum was again found to contain acid-fast bacillary forms. Cultures of 10 separate specimens during that month were identified as *Nocardia asteroides, vide infra.* At this time the possibility of early pulmonary nocardiosis could not be eliminated. However, over a period of ten months there had been no change on x-rays of chest and no evidence of ulcerative lesions of the tracheobronchial tree. Therefore, therapy was not instituted. The patient was allowed to return to full activity. It should be mentioned that throughout the illness the patient never had an elevated erythrocyte sedimentation rate.

On the basis of the aforementioned findings it was decided that this patient had a chronic bronchitis with recurrent respiratory infections, the specific etiology not determined. It is likely that Nocardia played very little if any part in the pathogenesis of these infections.

Follow-up studies over a period of eighteen months have been carried out. X-rays of the chest every two months have been negative. Respiratory infections have been infrequent, and there has been no productive cough following these infections. Diabetes has been well controlled and weight stabilized. Afternoon fever has been absent. The

sputum no longer contains acid-fast bacilli on smear or Nocardia on culture.

The sputum specimens were concentrated with 4 per cent sodium hydroxide and neutralized with 4 per cent hydrochloric acid. Growth was obtained aerobically on Corper's egg glycerine and Sabouraud's dextrose agar in three to five days. Subcultures grew on rabbit blood agar and in nutrient broth. The growth consisted of an irregularly folded, pale yellow colony about 1 millimeter in diameter. Grampositive, filamentous, occasionally branching, acid-fast forms, which could not be differentiated morphologically from tubercle bacilli, were found on microscopic examination. However, slide cultures demonstrated tangled branching hyphae. The organism failed to liquefy gelatin, coagulate milk, produce hydrogen sulfide or indole, or ferment sugars. It exhibited a musty odor. Guinea pig inoculation intraperitoneally with a 2 cubic centimeter saline suspension of the organisms resulted in death after three days. Multiple peritoneal abscesses were found which on microscopic examination contained acid-fast bacillary forms. Cultures from the abscesses yielded growth as above on Corper's and Sabouraud's media. From these findings it was felt that this organism could be classified as *Nocardia asteroides*.

The fragility of the mycelium of this organism persisted throughout all studies. Smears from solid media, broth, or animal lesions always demonstrated acid-fast bacillary forms. Slide culture was necessary for demonstration of branching hyphae.

Studies were carried out to determine the sensitivity of this organism to various antibiotics. (See Table 1) Serial dilutions of six antibiotics were made in tryptose broth. The agar plates were streaked with a 1:100 dilution of a three days' growth from a tryptose agar slant, and the broth was inoculated with 1.5 cc of the dilute suspension of organisms. Readings were made at twenty-four and forty-eight hours. The lowest concentration of the drug causing complete inhibition of growth was regarded as the end point.

TABLE 1
SENSITIVITY OF ORGANISM TO VARIOUS ANTIBIOTIC

	Plate Method	Broth
Chloromycetin	50 r/cc.	50 r/cc.
Sulfadiazine	12.5 mg./cc.	10 mg./cc.
Streptomycin	31.25 r/cc.	60 r/cc.
Penicillin	50 u/cc.	10 u/cc.
Aureomycin		25 /cc.
Terramycin	50 r/cc.	25 r/cc.

COMMENT

Although acid-fast organisms other than tubercle bacilli may occasionally be found in sputum, the necessity of excluding the latter is apparent. Unfortunately, in the case presented the organism was not identified for several months. During this period all the inconveniences resulting from a diagnosis of tuberculosis were imposed on the patient. Correct diagnosis was important because of differences in therapy, isolation, and interpretation of disease production. Isolation was not necessary since transmission of Nocardia from man to man has not been known to occur. Bed rest and specific therapy were not necessary since the presence of this organism in sputum does not itself indicate disease as in the case of the tubercle bacillus.

A more common error as reported in the literature[3-5] has been to make a diagnosis of pulmonary tuberculosis on the basis of x-ray findings in the chest plus other compatible clinical signs. In these patients with nocardiosis an organism was not demonstrated until late in the disease or at autopsy at which time Nocardia were identified.

Observation of this patient over a period of eighteen months made it clear that the organism was not acting as a pathogen. However, this was not obvious earlier in the course. Animal inoculation studies are not of much assistance since a progressive disease cannot be produced, and abscess formation depends upon the size of the inoculum.[6] This might explain the failure of earlier guinea pig inoculations with sputa concentrates to demonstrate lesions. A skin test as a means of determining disease production has been studied in animals.[6] However, sensitivity after infection has not been studied in humans.[7]

The failure to isolate the organism in culture prior to October 1949, is not readily explainable.[8] It is possible that the organism did not survive the concentration technic utilizing dilute sulfuric acid. Several concentration technics should be utilized when the presence of Nocardia is suspected. The use of selective media or antibiotics may be helpful.

In agreement with other reports sulfadiazine would have been the drug of choice if therapy had been required. It is felt that in vitro sensitivity tests with this organism should be accepted with reserve. Studies of response to other drugs should be done in vivo. Other antibiotics should not be withheld when failure of clinical response to sulfadiazine occurs.

CONCLUSIONS

1. The necessity for adequate identification of all acid-fast organisms found in sputum is again emphasized.

2. The presence of an aerobic actinomycete in the sputum of a patient with productive cough does not necessarily indicate either pulmonary or systemic invasion by this organism.

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SUNBURN AND THE INJURIOUS EFFECTS OF ULTRAVIOLET RADIATION

This is the season in which sunburn and the injurious effects of ultraviolet radiation attain maximum interest for the clinician.

The effects of sunburn are principally due to the ultraviolet effect, and ultraviolet radiation has been defined by the Council on Physical Therapy of the American Medical Association as "Radiation characterized by invisible rays in the electromagnetic spectrum between the violet rays and the roentgen rays. In wave length it ranges from 4000 to 200 Angstroms. It possesses powerful actinic and chemical properties." The consequences of undue exposure may be immediate and remote. Included in these effects of both types are those produced by glare from the surface of water, in which visible sunlight is at a minimum, and yet the ultraviolet activity producing sunburn may occur. That the immediate results of sunburn may be annoying and mildly disabling, is common knowledge. It is further understood by physicians that tissue injury may result, and the extent to which this may occur is of clinical importance. Four degrees of skin erythema are recognized as being produced by ultraviolet radiation. These effects vary from a first degree, which appears in about four hours and disappears in less than twenty-four, to a fourth degree, in which there is an intense increasing redness with edema and blistering that appears in a few hours, lasts for days, and is followed by deep pigmentation. The changes are associated with reflex dilation of the arterioles, and a local increased permeability of the vessel walls. Laurens states that blondes are 40 to 170 per cent more sensitive than brunettes and men 20 per cent more sensitive than women. Pigmentation follows erythema but the degree, as is well known, is variable. The origin of the pigment has been the subject of much investigation. The human skin contains pigment both in the epithelium and in the corium. The pigment of the basal cells of epithelium is in the superficial levels only when the skin is well tanned. It is thought by some that the horny layer of the skin is a decisive factor in light sensitivity, and that the protective action of this layer depends chiefly upon absorption, and to a less extent upon dispersion and reflection.

The action of ultraviolet on blood cells and hemoglobin is not what is popularly supposed. The Council on Physical Therapy stated, "Numerous claims that ultraviolet radiation exerts a variable therapeutic effect in secondary anemia have been advanced. The evidence supports the conclusion that while in some cases the ultraviolet rays may have had a slight therapeutic influence on this condition, such influ-

ence appears to be limited and, at most, irradiation is to be regarded as an adjuvant to the established methods." The Council on Physical Therapy has also stated in effect that the effect of ultraviolet on blood pressure is, "too slight and inconstant to be of clinical value."

The metabolic studies of ultraviolet effect have been made by Laurens and by Mayer. Repeated irradiations cause the diminished consumption of calories, decrease in basal rate of 10 to 15 per cent. Nitrogen metabolism was increased, excretion of uric acid was increased. Ultraviolet radiation may double the fat content of the blood and cholesterol may increase 30 per cent. Blood sugar of normal persons is not influenced appreciably by ultraviolet radiation, but in some diabetics, blood sugar is temporarily decreased and with diminution of the amount of sugar in the urine. This is thought to be due to increased insulin excretion.

The degree of the constitutional effect of the sunburn is dependent upon the extent of the burns. Symptoms in addition to those of a local origin are: fever, malaise, headache, depression, and those of a general toxemia which is not necessarily mild. The common observation among physicians, which is not appreciated sufficiently by the public, is that the individual's pigment contributes to his degree of tolerance to the sun. For the same reason, the individual who does not acquire tan or pigment after an exposure continues to be susceptible to the ill effects of irradiation. An additional factor in susceptibility is that contributed by chemicals ingested or applied to the surface. Among chemicals, the salicylates and barbiturates have been suspected of producing, in susceptible persons, some degree of photosensitization. Phenolphthalein and sulfanilamide are known to have such effect. Among the substances applied to the surface of the skin, those cosmetics containing oil of bergamot produce in susceptible people a dermatitis when exposed to the sun. A startling effect of the sun in disease is that produced by the exposure of the skin of a patient suffering from pellagra.

The remote effects of excessive sunlight are more difficult to recognize, but conceivably are of much greater importance. Consideration of the prevalence of skin cancer on exposed surfaces, and of the age of patients, gives some index as to the cumulative effect of such sun exposure. Skin cancer in the northern half of the United States is recognized as being much less frequent than in the southern half where it constitutes a major dermatologic problem. And further in the North the lesions appear in the sixth and possibly fifth decades, while in the South these lesions appear in the fourth and even the third decade. In many instances the lesions develop at a time remote from that of the greatest exposure to sun, and frequently, at a time when there has been no recent exposure. These observations suggest the ill effect of ultraviolet may be stored and that its cumulative influence may become manifest in later years.

The inference to be drawn from these thoughts is that suntan of itself does not mean health, and that repeated skin injury from exposure to the sun may contribute to the possibility of skin cancer, and possibly, to remote ill effects unknown at the present time. Even the immediate effects of sunburn may be serious.

It is therefore of some moment to caution against excessive sun exposure and to advise against repeated sunburn when pigmentary protection does not readily manifest. It is evident that blondes for some countless generations flourished where there was little sun, and that in the tropical and subtropical areas only the brunette types tended to survive. Let not the transplanted blondes in these areas attempt to negate the phylogenetic experience.

ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

ABSTRACTED MINUTES 1951 MEETING OF HOUSE OF DELEGATES LOUISIANA STATE MEDICAL SOCIETY

One hundred and one delegates, 16 officers and 9 past presidents present.

MINUTES

Minutes of the *1950 meeting of House of Delegates* approved as recorded.

Minutes of meetings of *Executive Committee since 1950 meeting of House of Delegates* approved.

SPECIAL ORDER

Report of President of Woman's Auxiliary, containing the following recommendations, accepted: 1. State Society and Auxiliary work more closely on local and state levels. 2. List of officers and chairmen of committees of State Society and presidents and secretaries of component societies sent to president of Auxiliary each year. 3. State Society continue publication of NEWS AND VIEWS. 4. Annual report of Auxiliary be presented to House of Delegates. 5. Importance of TODAY'S HEALTH be stressed.

Appointment of committees: *Credentials*—Dr. Wm. H. Roeling, Chairman, New Orleans; Dr. Eric Guilbeau, Jr., Lafayette; Dr. H. H. Hardy, Alexandria. *President's Report*—Dr. Jerome E. Landry, Chairman, New Orleans; Dr. A. G. McHenry, Monroe; Dr. C. M. Wiginton, Hammond. *Resolutions*—Dr. T. Benton Ayo, Chairman, Raceland; Dr. N. J. Tessitore, New Orleans; Dr. J. E. Knighton, Shreveport.

Roll of *members who died since* 1950 *meeting* read.

Announcement in re *inability of Dr. P. T. Talbot to attend meeting*—letter of regret to be sent to Dr. Talbot.

Acceptance with thanks, of book compiled by *Dr. Rudolph Matas* giving activities of *Past Presidents Advisory Council of the State Society 1928-1950;* secretary-treasurer to be custodian and place in Rudolph Matas Library at the Tulane Medical School.

Talk by *Dr. E. M. Toler* concerning *legislative activities.*

Report by *Dr. A. A. Herold, fraternal delegate* to meetings of Colorado, Kentucky and Texas medical societies.

COMMUNICATIONS

Dr. Rudolph Matas, Past President and *Dr. H. Guy Riche*, Third Vice-President in re *inability to attend meeting*: Letters of regret to be sent to doctors.

Pan-Pacific Surgical Association announcing *Fifth Congress to be held in Honolulu*, November 7-19, 1951: Received and filed.

New Orleans Business and Professional Women's Club containing *resolutions* in re *premarital examinations for both sexes and creation of a hospital for indigent tubercular patients*: Resolution in re premarital examinations referred to Committee on Public Policy and Legislation; resolution in re hospital for indigent tubercular patients tabled.

National Society for Medical Research in re membership and contribution: Received and filed.

Administrator of DePaul Sanitarium extending invitation to doctors to visit new addition to hospital: Communication to be acknowledged with thanks.

Royal Perfume Company offering gifts of perfume to doctors: Received and filed.

ACTION TAKEN

Proposed amendment to Section 10 of Chapter X of By-Laws: Chapter X to be revised by Committee on Medical Defense in consultation with attorney; report to be made to Executive Committee.

Recommendations to Governor for appointment on Committee on Sex Offenses: Three names to be submitted.

Recommendations for appointment on Louisiana State Board of Medical Examiners: Dr. Roy B. Harrison and Dr. Sam Hobson.

Attorney for State Society: Attorney employed to handle medical defense cases to also be employed to handle other legal matters; salary $1200.00 per year—$700 to be paid from Medical Defense Fund and $500 from general fund; increase effective July 1, 1951.

Recommendation of following doctors and laymen to serve on Board of Louisiana Physicians Service: Drs. Rhett McMahon, W. E. Barker, Jr., N. J. Tessitore, A. V. Friedrichs, O. B. Owens, W. L. Bendel, George W. Wright, Edwin L. Zander, L. O. Clark, J. W. Faulk, Arthur D. Long, Guy R. Jones, P. H. Jones, H. Ashton Thomas, Charles B. Odom, C. J. Brown, M. C. Wiginton, Charles McVea, H. W. Boggs; Laymen—Don Ewing, Pat Turner, Frank Lais, Jr., E. H. Curtis, Bill Clark, N. C. McGowen, Jim Bell, John LaNasa, Scott Wilkinson.

Resolution in re professional standards in hospitals: *Approved as follows*: "WHEREAS, The American College of Surgeons has announced its decision to discontinue the program of hospital standardization it has so ably conducted for many years; and WHEREAS, The American Hospital

Association Board of Trustees subsequently announced that the American Hospital Association would "assume full responsibility for the hospital standardization program now conducted by the American College of Surgeons," and its House of Delegates increased association dues to finance the program; and WHEREAS, Objections raised by the American Medical Association, the American Academy of General Practice, and others, to control of hospital medical practice by the American Hospital Association led to a series of conferences between representatives of the American Medical Association, the American Hospital Association, and the American College of Surgeons; and WHEREAS, A compromise agreement has now been proposed for the creation of a joint committee composed of representatives from the American Medical Association, the American Hospital Association, the American College of Surgeons, and the American College of Physicians, said committees to have complete authority over the evaluation and standardization of hospitals, including both administrative and professional aspects; and WHEREAS The evaluation and standardization of medical practice in hospitals is of such paramount importance to all branches of the medical profession that it should be under the sole and complete authority of the American Medical Association, which is the only medical organization representative of the entire profession in America and in which all segments of the profession have official democratic means of expressing their views on matters of such importance as the control of hospital medical practice; and WHEREAS, The creation of an extramural committee with authority over this important aspect of modern medical practice would deny those branches of the profession not officially represented on such committee official voice in the establishment and control of policies and procedures; now therefore be it RESOLVED: That, regardless of what other organizations may undertake in connection with the standardization of nonprofessional matters in hospitals, the sole responsibility for the evaluation, standardization, and control of medical practice in hospitals should be vested in the Council on Medical Education and Hospitals of the American Medical Association." Similar resolution on this subject offered by the Association of American Physicians and Surgeons, Inc: Tabled in view of action taken.

Resolution proposing abolishment of Fellowship in the AMA: Delegates to AMA to use own judgment in matter; resolution tabled.

SUBJECTS DISCUSSED—NO ACTION TAKEN

Amendment to By-Laws in re election of Councilors.

Membership in World Medical Association and subscriptions to journal of organization.

School Health Program; creation of Committee on Child Health suggested.

AMENDMENTS TO BY-LAWS

Section 9 of Chapter IX—Enlargement of Committee on Public Policy and Legislation.

Section 1 of Chapter XI—Increase in per capita appropriation to Committee on Public Policy and Legislation; from fifty cents to one dollar. Increase in per capita appropriation for annual entertainment fund; from one dollar to one dollar and a half. Surplus funds from annual meetings to be placed in general fund of the Society.

REPORTS WITHOUT RECOMMENDATIONS

Following reports received and filed: Secretary-Treasurer. Council. Councilors of First, Second, Third, Fourth, Fifth, Sixth, Seventh and Eighth Districts. Advisory Committee to Selective Service. Advisory Committee to Woman's Auxiliary. Committees on Arrangement—1951 Annual Meeting, Budget and Finance, Domicile, Hospitals, Journal, Lectures for Colored Physicians, Medical Defense, Medical Education, Medical Indigency, Medical Testimony, National Emergency Medical Service, Scientific Work. Planning Board in re Survey of Facilities and Personnel for Medical Care. Council on Medical Service and Public Relations. Louisiana Physicians Service, Inc. Louisiana State Board of Medical Examiners.

REPORTS CONTAINING RECOMMENDATIONS

President—1. An equitable pension plan to be worked out for our office employees. 2. The Committee on Committees review the Committee on Public Health with the view of creating a more workable and efficient representation. 3. Participation in activities of the Western Legislative Conference be continued. 4. A continuance of participation in the AMA Conference of Presidents and Other Officers of State Societies. Following report of the Committee on President's Report approved: The Committee on the President's Report wishes to commend the President for his untiring efforts in the advancement of medicine and in helping to solve its problems in both the state and nation during the past year. We approve of Recommendation #1 in principle and recommend that this plan be worked out by the Executive Committee. Recommendation #2 has been taken care of by other recommendations. Recommendation #3 we approve and believe that the participation in this conference should be continued. We approve Recommendation #4 and believe that this is a good public relations recommendation.

Committee on Aid to Indigent Members:—1. Increase in monthly payment ($10.00) made to doctor receiving assistance during past few years: Referred back to committee. 2. Survey to ascertain assistance rendered by other state medical organizations: Secretary's office to assist in survey.

Committee on Cancer:—1. The Cancer Committee should be a major committee under jurisdiction of the Executive Committee of the State Society: Ap-

proved by acceptance of report of Committee on Committees. 2. Chairman of the Cancer Committee should preferably be a New Orleans doctor so that close liaison with the State Society office and the office of the American Cancer Society can be maintained: Approved. 3. A program of professional education should be maintained; the method to be determined from year to year: Approved. 4. Sincerest appreciation expressed for cooperation of the Tulane and LSU Medical Schools and the American Cancer Society through its Louisiana Division: Approved. 5. Personal expression of appreciation of chairman to following persons for help in carrying out the cancer program—Dr. John Overstreet and the team of visiting physicians from Tulane University; Dr. Walter J. Burdette and team of physicians from the LSU Medical School; Dr. Ambrose Storck; Dr. Charles L. Black; Dr. L. O. Clark; Dr. R. E. C. Miller; Dr. Charles McVea; Dr. Hollis T. Rogers; Dr. Walter Moss and Mrs. Marian Simmons, Executive Secretary of the Louisiana Division of the American Cancer Society: Approved.

Committee on Committees:—1. Continuation of the Committee on Congressional Matters as a standing committee: Approved. 2. Continuation of the Committee on Maternal Welfare as a standing committee: Approved. 3. Continuation of the Committee on Cancer as a special committee: Approved. 4. Continuation of the Committee on Industrial Health as a special committee: Approved. 5. Continuation of the Committee on Rural Medical Service; name to be changed to Committee on Rural and Urban Health; committee to be composed of eight members, one from each Congressional District; Approved. 6. Continuation of the Committee on National Emergency Medical Service as a special committee: Approved. 7. Continuation of the Planning Board in re Survey of Facilities and Personnel for Medical Care with duties as outlined in report: Approved.

Committee on Congressional Matters:—1. Committee on Congressional Matters be continued as a standing committee separate from the Committee on Public Policy and Legislation: Approved by acceptance of report of Committee on Committees.

Committee on History of Louisiana State Medical Society:—Action of Executive Committee in approving following recommendations approved: 1. Acceptance by the State Society of $2,816.88 refund of amount advanced for publication of the History of the Louisiana State Medical Society, for distribution to contributors or their heirs. 2. Continuance by Dr. Rudolph Matas to edit and defray all expenses of the History until it is completed and ready for publication. 3. In event of death of Dr. Matas before completion of History funds left by Dr. Matas to be used for completion of the History, under auspices of the Louisiana State Medical Society with agreement that the Louisiana State Medical Society shall receive whatever benefits may result from publication. 4. That the History shall appear as a publication officially endorsed by the Louisiana State Medical Society after its approval by the House of Delegates. 5. Dr. Matas to continue as Chairman of the Committee on History as long as he is physically able to direct and supervise this work. 6. That all rights and privileges enjoyed by Dr. Matas as founder, editor, director and owner of this History, under auspices of the Louisiana State Medical Society, shall remain inalienable.

Committee in re Investigation of Louisiana Physicians Service:—Following report referred to Executive Committee with approval of House of Delegates; Executive Committee to issue necessary authority for separation and operation of hospital and medical services as outlined: "After a very careful consideration of the relationship existing between Louisiana Physicians Service and Louisiana Hospital Service, and also, the Hospital Service Association of New Orleans, the Committee finds: (1) A satisfactory working basis among the three was not obtainable because of several factors not under control of the medical profession. (2) After a thorough discussion with representatives of Louisiana Physicians Service and Louisiana Hospital Service, the committee feels that the relationship should be dissolved. (3) The committee advises that the Louisiana Physicians Service be directed to sell surgical, medical, and hospital insurance throughout the state."

Louisiana Health Council:—Report containing the following recommendations accepted: 1. Doctors of the state participate more freely in the local and state health councils. 2. Council on Public Health be created that will assist the state health council and its subsidiaries in health work. 3. Fifteen hundred dollars be appropriated for use of this council in carrying out its activities.

Committee on Maternal Welfare:—1. Committee on Maternal Welfare be discontinued as a standing committee and become a subcommittee of the Committee on Public Health of the State of Louisiana: Recommendation withdrawn by chairman of committee after acceptance of report of Committee on Committees.

Committee on Public Health of the State of Louisiana:—1. Cancer program, rural health program, a program on industrial health and a program on school health handled by separate committees: No action taken in view of acceptance of report of the Committee on Committees.

Committee on Public Policy and Legislation:—1. Recommendations to Governor for appointment on Committee on Sex Offenses: Three names to be submitted.

Committee on Resolutions:—1. Copy of report be incorporated in minutes of the meeting and published in New Orleans Medical and Surgical Journal.

ELECTION OF OFFICERS, COMMITTEES AND DELEGATE AND ALTERNATE TO AMA

President-elect—Dr. W. E. Barker, Jr., Plaquemine.

First Vice-President—Dr. Charles B. Odom, New Orleans.

Second Vice-President—Dr. H. W. Boggs, Shreveport.

Third Vice-President—Dr. W. Robyn Hardy, New Orleans.

Chairman of House of Delegates—Dr. A. V. Friedrichs, New Orleans.

Vice-Chairman of House of Delegates—Dr. T. Benton Ayo, Raceland.

Councilor, Third District—Dr. Guy R. Jones, Lockport.

Councilor, Sixth District—Dr. Arthur D. Long, Baton Rouge.

Councilor, Seventh District—Dr. J. W. Faulk, Crowley.

Councilor, Eighth District—Dr. H. H. Hardy, Alexandria.

Delegate to AMA (1952 and 1953)—Dr. J. Q. Graves, Monroe.

Alternate to Delegate to AMA (1952 and 1953)—Dr. A. A. Herold, Shreveport.

COMMITTEES

Journal—Dr. Charles M. Horton, Franklin.

Medical Defense—Dr. C. B. Erickson, Chairman, Shreveport.

Scientific Work—Dr. William H. Gillentine, New Orleans; Dr. J. E. Knighton, Shreveport.

Public Policy and Legislation—Dr. Cuthbert J. Brown, Chairman, New Orleans; Dr. J. E. Clayton, Norco; Dr. Julius M. Fernandez, Franklin; Dr. Arthur A. Herold, Shreveport; Dr. Dewitt T. Milam, Monroe; Dr. Daniel J. Fourrier, Baton Rouge; Dr. Ernest C. Faulk, Rayne; Dr. M. B. Pearce, Alexandria.

1952 MEETING

Invitation to meet in Shreveport accepted.

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LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Third Thursday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

SHORT-TERM PREDOCTORAL FELLOWSHIPS

The National Foundation for Infantile Paralysis announces a new type of short-term predoctoral fellowships for undergraduate medical students who are interested in research in medicine and the related biological and physical sciences. The fellowships cover a minimum of two months experience in research under the direction of a competent investigator in the laboratories of appproved medical schools or research institutes in the United States.

Under the plan, the Dean of each four-year medical school has the privilege of nominating one medical student to receive a fellowship. The National Foundation for Infantile Paralysis will provide a stipend of $400 for each student who qualifies for the summer laboratory study.

The new fellowships, as well as the regular pre and postdoctoral fellowships currently being offered by the National Foundation, are administered by its Division of Professional Education with the assistance of a professional committee headed by Dr. Thomas B. Turner, Professor of Bacteriology at the School of Hygiene and Public Health of Johns Hopkins University.

The purpose of the new short-term fellowships is to enable medical school students to test their desires and determine their aptitudes to participate in research in medicine and related biological sciences at an early stage in their professional careers.

RESEARCH FELLOWSHIPS IN ARTHRITIS

The Arthritis and Rheumatism Foundation is offering research fellowships in the basic sciences related to arthritis. Fellowships will be granted at both the predoctoral and postdoctoral levels. The predoctoral fellowships will range between $1,500 and $3,000 per annum, and the postdoctoral from $3,000 to $6,000. The deadline for these applications is November 15, 1951. Application forms may be obtained by writing the Medical Director,

Arthritis and Rheumatism Foundation. 535 Fifth Avenue, New York 17, N. Y.

A LESSON IN SOCIALISM

As a teacher in the public schools, I find that the socialist-communist idea of taking "from each according to his ability," and giving "to each according to his need" is now generally accepted without question by most of our pupils. In an effort to explain the fallacy in this theory, I sometimes try this approach with my pupils:

When one of the brighter or harder-working pupils makes a grade of 95 on a test, I suggest that I take away 20 points and give them to a student who has made only 55 points on his test. Thus each would contribute according to his ability and —since both would have a passing mark—each would receive according to his need. After I have juggled the grades of all the other pupils in this fashion, the result is usually a "common ownership" grade between 75 and 80—the minimum needed for passing, or for survival. Then I speculate with the pupils as to the probable results if I actually used the socialistic theory for grading papers.

First, the highly productive pupils—and they are always a minority in school as well as in life—would soon lose all incentive for production. Why strive to make a high grade if part of it is taken from you by "authority" and given to someone else?

Second, the less productive pupils—a majority in school as elsewhere—would, for a time, be relieved of the necessity to study or to produce. This socialist-communist system would continue until the high producers had sunk—or had been driven down —to the level of the low producers. At that point, in order for anyone to survive the "authority" would have no alternative but to begin a system of compulsory labor and punishments against even the low producers. They, of course, would then complain bitterly, but without understanding.

Finally I return the discussion to the ideas of freedom and enterprise—the market economy—where each person has freedom of choice, and is responsible for his own decisions and welfare.

Gratifyingly enough, most of my pupils then understand what I mean when I explain that socialism—even in a democracy—will eventually result in the living-death for all except the "authorities" and a few of their favorite lackeys.

Thomas J. Shelly,
Teacher of Economics and History,
Yonkers High School,
Linden and Poplar Sts.,
Yonkers 2, New York.

NEWS

Doctor Roy Carl Young, Medical Director of Fenwick Sanitarium of Covington attended the meeting of the American Psychiatric Association in Cincinnati from May 6th to May 11th where he received his Fellowship certificate in the Association.

Doctor Young also attended the meeting of the National Association of Private Psychiatric Hospitals and was reelected Treasurer of that organization.

THE INTERNATIONAL COLLEGE OF SURGEONS MEETS IN CHICAGO

The sixteenth annual assembly of the United States Chapter of the International College of Surgeons will be held in Chicago on September 10th through the 13th, 1951, with headquarters at the Palmer House.

An excellent program has been arranged. Prominent surgeons from the United States and other countries will participate. Scientific sessions will be held by all specialty sections of the United States chapter.

The annual banquet will take place on Wednesday evening, September 12. Mr. Lawrence Abel, F. R. C. S. (Eng.), of London, will be the principal speaker.

The assembly will conclude with the convocation, to be held in the Civic Opera House on the evening of September 13. Senator Estes Kefauver will deliver an address on "The America of Tomorrow".

Hotel reservations may be arranged by writing to the Housing Division, Chicago Convention Bureau, 33 North LaSalle Street, Chicago 2, Illinois.

ANNUAL MEETING OF THE NEW ORLEANS GYNECOLOGICAL AND OBSTETRICAL SOCIETY

At the Annual Meeting of the New Orleans Gynecological and Obstetrical Society held at the Lakewood Country Club on Wednesday, May 30, Dr. Harry Meyer was installed as president and other officers for 1951-52 were elected as follows: Dr. Curtis J. Lund, president-elect; Dr. E. W. Nelson, vice-president; Dr. Abe Golden, secretary; Dr. John C. Weed, treasurer.

Dr. John S. Herring, in his address as out-going president, reviewed accomplishments of the organization during the past year which have included outstanding scientific presentations by notable speakers.

Dr. Harry Meyer, in accepting the presidency for the coming year, pointed out that this specialty group is composed of obstetricians and gynecologists from all hospital and teaching institutions in the city.

THE USE OF ALUMINUM COOKING UTENSILS IN THE PREPARATION OF FOODS

Periodically rumors are circulated to the effect that foods cooked in aluminum cooking utensils are deleterious to health because of injurious substances imparted by the vessel. Thus it becomes necessary to again call attention to pertinent facts about aluminum.

Aluminum abounds in the earth's crust and is widely distributed in nature being present in a wide range of edible plants. Undoubtedly man has ingested small quantities of aluminum daily since he came upon the earth. Aluminum compounds are also important and useful therapeutic agents.

The possibility that aluminum utensils can impart injurious agents to the foods cooked in them has been extensively investigated. Up to the present time there has been no cogent scientific evidence indicating that the minute traces of aluminum that may be imparted to food in the process of cooking are in any way injurious to the consumer. As for the rumor that the use of food prepared in aluminum cooking utensils is a factor in the causation of cancer, it may be added also that there is absolutely no scientific basis in support of this view.

In view of these facts it is the opinion of he Council that the use of aluminum cooking utensils is in no way injurious to health.

BOOK REVIEWS

The Physiological Basis For Oxygen Therapy: By Julius H. Comroe, Jr., and Robert D. Dripps. Charles C. Thomas, Springfield, 1950. Pp. 85. Price, $2.50.

This is one of the monographs in physiology published in the American Lecture Series. Its purpose is to emphasize the rational, physiological basis for oxygen therapy. The book is therefore concerned with (1) an analysis of the effects of the inhalation on various functions of the normal body, (2) the problems of anoxia and other abnormal conditions in which the inhalation of oxygen has been suggested and (3) the possible hazards attendant upon the administration of oxygen.

The monograph is well written and documented and will be of interest and value to those concerned with the problem of oxygen therapy.

The section on the effect on arterial oxygen saturation, content and tension is brief but quite adequate. The author properly emphasizes that the inhalation of 100 per cent oxygen by a healthy person, while adding only 11 per cent in total oxygen, results in an increase of 50 per cent in the pressure head of oxygen to which the tissues are exposed since the added oxygen is in physical solution and is readily available. This is of extreme importance when the oxygen tension is low, since the amount in physical solution summates with the oxygen taken up by hemoglobin to its saturation point. Anoxia is discussed in detail following an outline in which the various types are classified from a clinical point of view. The authors stress the difficulty of making a diagnosis of anoxemia from the degree of cyanosis present and emphasize the importance of laboratory examination in this regard. The use of the oximeter for this purpose is also described. The inhalation of oxygen in acute anoxia is discussed and the question of its use in chronic anoxia left open. The short chapter on oxygen inhalation in conditions without anoxia includes recent work dealing with its use in eliminating nitrogen from the body, the treatment of anaerobic infections and migraine. The final chapter on possible harm from the inhalation of oxygen is thorough and complete including a consideration of the problem of "oxygen apnea."

H. S. MAYERSON, Ph. D.

The Ethical Basis of Medical Practice: By Willard L. Sperry; with a foreword by J. Howard Means, M. D. New York, Paul B. Hoeber, Inc. 1950. Pp. 185. Price, $2.50.

In a simple and thought-provoking manner, this small volume, written by the Dean of the Harvard Divinity School, deals with the mutual and overlapping problems of ministers and physicians. The discussions have been developed from lectures which Dean Sperry has given before the Medical Staff of the Massachusetts General Hospital, the University of Michigan and elsewhere. Problems are presented in which the physician must decide "not between black and white, but between rather closely matching shades of gray." Chapters of especial interest are: Democratic and Totalitarian Medicine, Telling the Truth to the Patient, Prolongation of Life and Euthanasia, Pro and Con. No other modern book known to the reviewer,

presents so well the ethical basis of medical practice to which in the increasing tempo of life today, all too little attention is given. This book should find a place both in the libraries of physicians and medical students.

MARY LOUISE MARSHALL

Operations of General Surgery, Second Edition: By Thomas G. Orr, W. B. Saunders Company, Philadelphia, 1949. Pp. 890. Price, $13.50.

This volume presents with remarkable completeness and, at the same time, excellent selectivity, both the newest and long-established technical procedures of proven merit in the entire field of general operative surgery. To accomplish this, the author has drawn on classic periodical and textbook illustrations, which he has in some instances modified, and he has also included many original illustrations, altogether totaling 1700. Supplementing the illustrations and their legends, the author gives terse word descriptions of the operations, and brief but sound comments concerning their application, including dangers and safeguards. For the convenience of those desiring to refer to original sources of material there are excellent reference lists at the end of each chapter.

AMBROSE H. STORCK, M. D.

Personality in Peptic Ulcer: By A. J. Sullivan, M. D., & T. E. McKell, M. D. Charles C. Thomas, 1950. Illus. Pp. 100. Price, $3.00.

This little book is entertaining and easily read. The illustrations, based on sketches by Dr. Fred Rehfeldt, are ingenious.

The authors classify ulcer patients in four groups. Group A, (72 per cent) consisted of patients with the "typical ulcer personality." These patients are described as driving, tense, anxious—the promoter and go-getter. Group B (11 per cent) is described as definitely psychoneurotic. The authors suggest that psychiatric help be obtained for these patients. Group C (5 per cent) includes those patients in whom some striking external situation precipitated the ulcer. The extrinsic factor in these cases seemed dominant. In Group D (10 per cent) the intrinsic and extrinsic factors seemed minimal, but there existed some unusual constitutional factor, e. g. peptic ulcers associated with Meckel's diverticula, hiatus hernia, etc. Two per cent of their cases were not classified due to insufficient data.

The interrelationship of various intrinsic and extrinsic factors in the production of peptic ulcer is discussed, and many illustrative cases are reported. The authors are to be commended for presenting convincing data regarding the etiology of peptic ulcer. The book will be of value to any physician treating ulcer patients, and could be used by the intelligent patient with profit.

PHILIP M. TILLER, JR., M. D.

Regional Orthopedic Surgery: By Paul C. Colonna, M. D., Philadelphia and London, W. B. Saunders Co., 1950, Pp. 706, Illus. Price, $11.50.

This book was designed for use in undergraduate teaching of orthopedic surgery and diseases of the bones and joints. As the name implies, it is organized on the basis of anatomical regions for the most part. However, there is a separate introductory section on the physiology of bones and joints and separate sections on neuromuscular disturbances, tumors of bone, orthopedic apparatus and appliances, and physical medicine as applied to orthopedic surgery. The last chapter on physical medicine was written by Dr. George Morris Pearson.

As a whole, this book accomplished what it sets out to do, namely, to present orthopedic conditions from a regional approach in a very admirable manner. However, as the author recognizes, the voluminous nature of present-day orthopedic literature is almost impossible to cover completely in a book of this type. Some would question the advisability of including a brief discussion and description of fractures along with other bone pathology in each region. However, if the object of presenting material for evaluation of muscles in skeletal sections on a regional basis is kept in mind, the inclusion of such fractures is permissible.

For the most part, the illustrations are of good quality, especially those which are original. The alternate use of positive and negative roentgenogram prints distracts from the aesthetic qualities of the illustrations.

This is by far the best modern book available to the undergraduate student on orthopedic surgery. It presents the material in a concise and lucid manner, coordinating applied anatomy and physical examination with various types of pathology found in each region. Although it is of primary value as a teaching text, it will also serve

very well as a reference book for the general surgeon and practitioner.

JACK WICKSTROM, M. D.

Newer Concepts of Inflammation: By Valy Menkin, M. A., M. D., Springfield, Ill. Charles C. Thomas, 1950. Pp. 145. Illus. charts. Price, $3.50.

This little book by Valy Menkin, who has spent twenty years or more in investigating the basic problem of inflammation, is highly interesting. It presents a well integrated and well documented explanation of the changes seen in inflammatory reaction. The concept is essentially one involving chemical factors, attempting to explain the inflammatory changes at the level of various basic chemical substances, each responsible for one or more of the features of inflammation. The simplicity and straightforwardness of the presentation are very convincing, since basic truths fully understood often lose the complexities of partial or conjectural explanations.

The book is divided into five chapters. In the first four, are discussed capillary permeability, inflammation in immunity, phagocytosis, diabetes in inflammation, fever and repair. These four chapters form a fascinating and well-knit story, which should be interesting to all medical men. For those who desire only the distillate of these 145 pages, however, the last chapter of recapitulation and conclusion effectively outlines the substance of the book.

The author has made good use of footnotes to include brief summaries of work directly supporting his statements. The bibliography at the end of each chapter (a total of over 125 references) is a valuable part of the book. The illustrations are well chosen and effective.

W. H. HARRIS, JR., M. D.

Normal Values in Clinical Medicine: By F. William Sunderman, M. D., Ph. D., & Frederick Boerner, V. M. D., Philadelphia, W. B. Saunders Co., 1949. Pp. 845. Price, $14.00.

This volume of 845 pages is divided into 14 sections which include a total of 74 chapters. These sections are selected mostly following the design of anatomical or physiological systems. The last 4 sections, however, are appended to this organization and include values for metabolism and nutrition, anatomical normals, teeth and saliva (normal values in dentistry) and a final section of miscellaneous data.

The data presented are well documented with bibliographical references, but, for the most part, the presentation is dogmatic, with little effort made to distinguish between or discuss values at variance with one another. Generally, the attention to methods by which values were obtained is neglected or is too brief to serve more than refresher information to one already familiar with the technics.

The chapter on endocrines is notable in its exclusion of all endocrines except the sex hormones. The chapter on drugs and doses, also seems too brief for general reference. While values for the special senses are good, those for the nervous system in general are quite sketchy and incomplete.

Especially good is Chapter 23, a resumé of physical characteristics and chemical components of blood and serum. Coverage of values for the gastrointestinal tract and its related organ functions is quite complete as is the report of values for the respiratory system.

In general, this book is not easy reading. Its material is almost exclusively of diagram and table presentation. Its exclusion of methodology and critical discussions of the validity of the values given, place it in the category of a reference scurce. For this purpose, however, it may be well recommended.

JOHN K. HAMPTON, JR., Ph. D.

PUBLICATIONS RECEIVED

The Blakiston Co., Philadelphia: Handbook of Nutrition, prepared under the auspices of the AMA (2nd Edition).

Federal Security Agency, Washington: Industrial Health and Medical Programs, by Margaret C. Klem, Margaret F. McKiever, and Walter J. Lear, M. D.

Froben Press, Inc., N. Y.: Rice, Dietary Controls and Blood Pressure, by Frances I. Seymour, M. D.

Medical Association of S. C.: The Life of Dr. Peter Fayssoux of Charleston, S. C., by Chalmers G. Davidson.

Oxford University Press, N. Y.: The Kidney, Structure and Function in Health and Disease, by Homer W. Smith, A. B.

Philosophical Library, N. Y.: Philosophy for the Common Man, by Heinrich F. Wolf.

Premier Publications, Ltd., Sacramento: Memories, Men and Medicine, by J. Roy Jones, M. D.

W. B. Saunders Co., Philadelphia: Diabetes Mellitus, Principles and Treatment, by Garfield G. Duncan, M. D.; Principles and Practice of Obstetrics, by J. P. Greenhill, M. D. (10th Edition); Electroencephalography in Clinical Practice, by Robert S. Schwab, M. D.; A Textbook of X-Ray Diagnosis, by British Authors (2nd Edition); Clinical Heart Disease, by Samuel A. Levine, M. D., (4th Edition); Textbook of Medicine, by Russell L. Cecil, M. D. and Robert F. Loeb, M. D.

Charles C. Thomas, Publisher, Springfield, Ill.: Fever Therapy, by H. Worley Kendell, M. D.; Blood Groups in Man, by R. R. Race, Ph.D., and Ruth Sanger, Ph.D.; Tuberculosis Among Children and Adults, by J. Arthur Meyers, M. D. (3rd Edition); Emotional Factors in Cardiovascular Disease, by Edward Weiss, M. D.; Post-Graduate Lectures on Orthopedic Diagnosis and Indications, by Arthur Steindler, M. D.; Roentgen Manifestations of Pancreatic Disease, by Maxwell H. Poppel, M. D.; Treatment of the Nephrotic Syndrome, by Lee E. Farr, M. D.

University Medical Publishers, Palo Alto, Calif.: Handbook of Medical Management (2nd Edition), by Milton Chatton, M. D., Sheldon Margen, M. D., and Henry D. Brainerd, M. D.

University of Oklahoma Press, Norman: Pioneer Doctor, by Lewis J. Moorman, M. D.